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NOVALUX FLOODLIGHTING EQUIPMENT

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CCA

G-E Novalux Floodlights



Introduction

In 1915, the first floodlights with MAZDA lamps were used to light the Panama-Pacific International Exposition — to reveal at night the daytime beauty of its buildings. In the beginning, floodlights were a novelty; later, they became a luxury; today, they are often a necessity. Whether it be to prolong the daytime beauty and appearance into the hours of darkness; whether it be to create after sundown striking effects of shadows and color; whether it be purely utilitarian, making possible work at night — floodlighting is a profitable investment. Filling stations, hotels, and restaurants — sports fields, swimming pools, and gardens — railway yards, parking areas, and construction work; each needs, in its own way, modern floodlighting.

The first floodlights were designed by

General Electric to light the Panama-Pacific Exposition in San Francisco. Since that time General Electric has added new and improved units until today there are standard G-E Novalux* floodlights to meet every purpose. These pages are prepared to help you select the floodlights which will best fit your needs.

All the standard projectors are mentioned, and illustrations, dimensions, and prices of most of them are given. Also included are general recommendations for the selecting of floodlights for various types of installations. However, many problems arise which cannot easily be solved by simple tables and calculations. For these cases, we offer you the services of our lighting specialists, men trained by experience in the solution of floodlighting problems.

* Novalux is a trade name of General Electric lighting units; it means, literally, "new light," and was originally used to contrast the MAZDA incandescent lamps with arc lamps.

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Floodlighting Possibilities

The many applications of floodlighting may be divided into five classifications which, in themselves, are the very definite reasons for this type of intensive lighting. Many installations are justified in that they prove to be profitable for the user for EACH of the five reasons given below.



An illustration of floodlighting for decoration. Light brings out at night the true beauty of buildings.

1. Floodlighting for Utility

To expedite outdoor work and to make possible greater use of outdoor areas at night.
To eliminate accidents and hazards.

Floodlighting permits safely carrying on, after darkness, the normal daytime activities.

2. Floodlighting for Advertising

To promote and increase business by attracting attention through conspicuous illumination.

To obtain dignified publicity.

Where business can be promoted by the conspicuous illumination of buildings, signs, water towers, stacks, and roadside displays, there is an opportunity to plan profitable floodlighting. Floodlighting is also an excellent means of giving dignified publicity to banks, churches, hotels, real-estate developments, and large buildings.

3. Floodlighting for Decoration

To afford greater opportunity for the enjoyment of natural scenery, buildings, and memorials, in leisure hours.

To promote civic pride.

To enhance architectural detail and allow greater freedom of design.

As a method of outdoor decoration, floodlighting is just coming into its own. Civic officials have taken the lead by arranging for the illumination of public buildings, monuments, and memorials.

4. Floodlighting for Night Sports

To permit recreation for daytime workers in the cool hours of evening.

To make professional and amateur sports self-sustaining by increasing gate receipts.

To allow more practice hours, and greater participation in sports.

Night lighting for all types of outdoor sports has become a necessity. A large percentage of people have their only opportunities for the enjoyment of sports during the evening hours, and are demanding that lighting facilities be provided.

5. Floodlighting for Protection

To protect against crime and vandalism.

To prevent jail breaks.

Light is the cheapest and most effective protection for homes and commercial and industrial properties. All city, county, and state penal institutions and asylums should have the protection afforded by floodlighting.

Floodlighting Applications

Application	Utility	Adver- tising	Deco- ration	Sports	Protec- tion	Application	Utility	Adver- tising	Deco- ration	Sports	Protec- tion
Aqueducts.....	x				x	Monuments.....			x		
Banks.....		x			x	Prison Walls.....	x				x
Coal Yards.....	x				x	Parks.....		x	x	x	x
Construction.....	x				x	Pageants.....			x	x	
Club Houses.....			x	x	x	Private Estates.....			x		x
Churches.....		x	x			Parking Areas.....	x				x
Dredging.....	x					Quarries.....	x				x
Docks.....	x				x	Reservoirs.....			x		x
Farms.....	x		x		x	R. R. Buildings.....	x				x
Fair Grounds.....	x	x	x	x	x	Residences.....	x	x	x	x	x
Fountains.....			x			Sand Pits.....	x				
Gas Stations.....	x	x			x	Storage Yards.....	x				x
Garages.....		x			x	Substations.....	x				x
Gardens.....	x		x			Smokestacks.....		x			
Hotels.....		x			x	Signs.....		x			
Hospitals.....	x				x	Stores.....		x			x
Industrial Plants.....	x	x			x	Schools.....			x	x	x
Lumber Yards.....	x				x	Sports Areas.....			x	x	
Loading Platforms.....	x					Used-car Lots.....	x	x			x
Monument Works.....	x				x	Water Towers.....		x			x
Mines.....	x				x	Waterfalls.....			x		

The general list of floodlighting possibilities shown above will indicate the reasons for the use of floodlights in specific applications. Note, for example, that residences need light for all five reasons.

GENERAL DATA

Standard layout drawings that indicate recommendations for the most popular outdoor sports and recreations are available; and as new applications are created, additional recommendations will be issued. The following tabulation of available drawings includes those covering the most common sports. Copies will be supplied on request.

SPECIAL APPLICATIONS

Recommendations for floodlighting large buildings; spectacular and decorative lighting; fountain and water effects; and other special lighting will be furnished without obligation. In submitting requests for recommendations it is advisable to include complete information on the power supply and the nature of surfaces to be lighted, together with scale drawings of the structure or grounds.

INDEX TO SPORTS LIGHTING RECOMMENDATIONS

(Abridged)

BADMINTON	M-25395-F
BASEBALL	
Closed Type (105.0 kw.).....	M-25376-D
Open and Closed (251.0 kw.).....	M-25376-O
Open Type (228.0 kw.).....	M-25376-F
Open Type (150.0 kw.).....	M-25376-G
DIAMOND BALL	
Regulation Diamond Ball.....	M-25395-A
FOOTBALL	
Closed Type (53.0 kw.).....	M-25394-A
Closed Type (47.0 kw.).....	M-25376-K
Open Type (96.0 kw.).....	M-25376-Y
Open Type (48.0 kw.).....	M-25376-N
FOUNTAINS.....	See pages 8 and 9
ICE HOCKEY	
Closed-type Floodlights	M-25376-T
Open-type Floodlights	M-25376-U

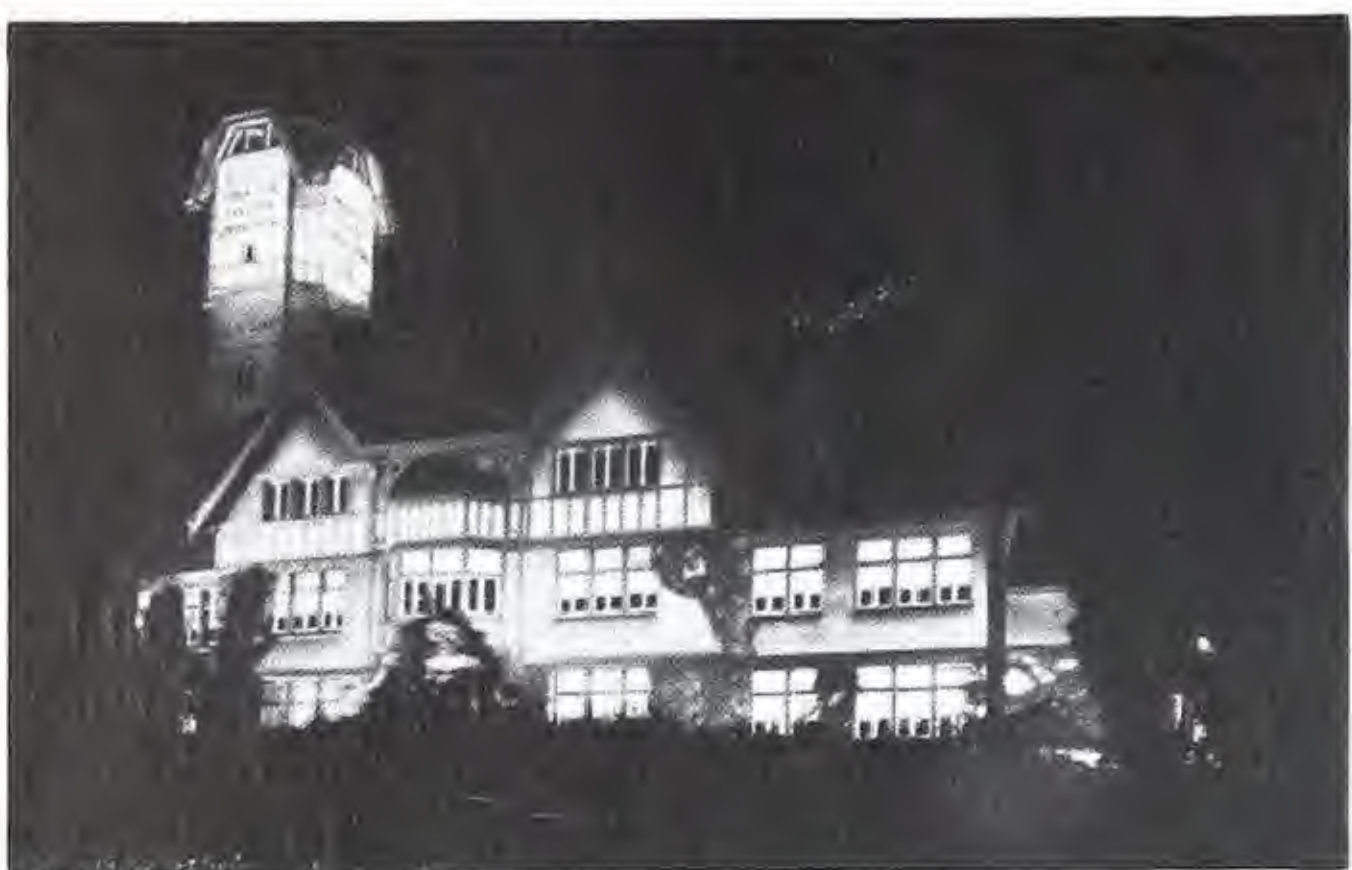
KITTEN BALL	
Regulation Kitten Ball.....	M-25395-J
Kitten Ball Played on Standard Diamond.....	M-25395-K
RACE TRACK	M-25369-Q
SHOOTING	
Skeet	M-25366-N
Trap	M-25368-S
SHUFFLE BOARD	
Regulation	M-25376-X
Home Courts	M-25395-D
SWIMMING POOL	
Dry Niche	M-25395-I
Wet Niche	M-25395-C
Overhead	M-25395-E
TENNIS	
Playground	M-25376-A
Tournament	M-25376-S

Floodlighting Applications



Gasoline Filling Stations, Roadside Stands, Parking Areas, and Tourists' Camps

With the heavy and annually increasing use of the highways by motorists, a widespread demand has arisen for the brilliant lighting of service stations, roadside stands, etc. This demand is completely met by floodlighting, which not only serves the convenience of tourists but conspicuously and favorably advertises the business and location.



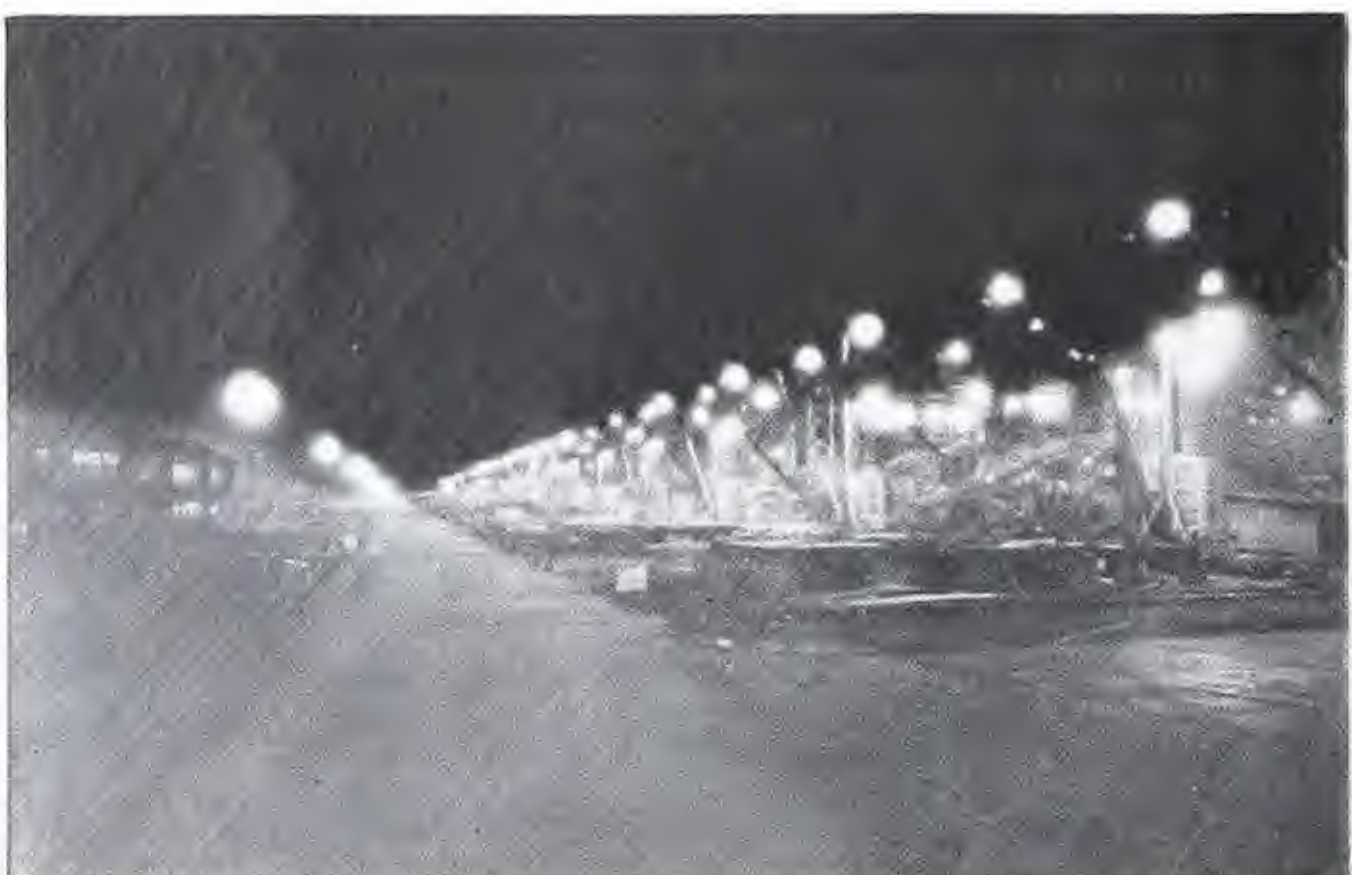
Office Buildings, Hotels, Banks, Stores, Theaters, Factories, and Power Stations

The floodlighting of public and commercial buildings, with both clear and colored lights, attracts marked public attention and emphasizes architectural beauties at night, when the greatest number of people have opportunity and leisure to see and appreciate them. The value of floodlighting as an advertising medium is evidenced by the ever-growing number of installations.



Monuments and Public Buildings

In every municipality there are examples of architecture — statues, public buildings, places of historic interest — in which the community takes pride. The floodlighting of such structures, with clear or colored lights, adds to their impressiveness and gives them a prominence that is even greater at night than by day.



Billboards, Signs, and Stacks

For applications such as these, G-E floodlights can be installed in practically any convenient place; hence, they do not require complicated wiring. They increase the working hours of billboards and multiply advertising value by the contrast of the illuminated surface with its dark background of night.

Construction Work

Contractors are frequently called upon to do construction work at night. Sometimes it is an emergency repair job, at other times night work is necessary in order to complete a contract on time. Floodlighting projectors, because of their portability, are readily adaptable to this application.

Railroad Yards, Docks, Bridges, Aqueducts, Reservoirs, and Mines

Locations such as these must be nightly guarded against mischief makers and prowlers. Floodlighting aids materially in such protection. In addition, the flood-

Floodlighting Applications

lighting of railroad yards, mines, and docks affords greater speed and safety in handling cars and cargo.

Real-estate Developments, Public Auctions

The floodlighting of real-estate developments and houses for sale, as well as billboards that advertise places where property will be sold at auction, is a vivid and effective means of attracting prospective purchasers.

Decorative and Spectacular Effects; Landscapes

The floodlighting of residences, gardens, waterfalls, caves, and spectacular natural scenes endows them with new beauties at night. They present a charm quite different from their appearance by day. In the same way, brilliant effects may be obtained in connection with Christmas lighting and decorative illumination for festival occasions.

Farms, Barns, Chicken Houses, Orchards, etc.

Floodlighting such buildings and locations guards against mischief makers, thieves, and prowlers, and protects farm property in general. The convenience afforded by the floodlighting of farmyards and out-buildings is an obvious advantage to the farmer and his family.

Kittenball, Baseball, Soccer, and Tennis

Most people have no time during the day to attend ball games and athletic meets. In order to enable them to witness or participate in such events, parks and athletic fields are now being floodlighted. The increase in the use of the tennis courts and park facilities, or the additional revenue from gate receipts, will justify the expense of installation and operation. Floodlights may be mounted on poles adjacent to the grounds or on top of the stands and buildings near by.

Gun Clubs, Driving Ranges, and Bowling Greens

Nearly every municipality has its clubs or small commercial enterprises which afford the people recreation. Floodlighting makes such places doubly attractive. The use of floodlighting projectors, which are readily portable, obviates the necessity of complicated wiring for a number of small units and simplifies and expedites installation and transfer of equipment.

Winter Sports

G-E floodlighting projectors have been found especially adaptable for lighting winter carnivals, toboggan slides, and skating, hockey, and curling rinks. As the units can be mounted at a considerable distance from the area that is being used, there is no need of poles, which are often dangerous obstructions.



Method of Solving Floodlighting Problems

Unfortunately, it is not possible to give general formulas which will cover all application—to say that this floodlight, or that one, will have a “working distance” of so many feet. Too many factors may vary—the area to be lighted, the intensity of light needed, the reflection factor of the surface to be lighted, and the possible locations for the floodlights. The accompanying tables will be found to be a helpful guide in making general computations. Occasionally problems will arise which cannot be solved by any simple methods; for these cases, the services of our floodlighting specialists are always available.

Power Requirements

An approximate estimate of the power required may be found by allowing 0.15 of a watt per square foot of surface per footcandle of intensity. Recommended footcandle intensities will be found in the tables on the opposite page.

EXAMPLE: Find the approximate power necessary for the floodlighting of a light-gray limestone building, 50 by 150 feet, on a white way. Area, 7500 square feet. The table shows a recommended intensity of 20 footcandles.

$$\text{Power} = 0.15 \times 20 \times 7500 = 22.5 \text{ kw.}$$

Selection of Projector

The selection of the projector involves the adequacy of the floodlight beam to cover the surface to be lighted. The pattern of this beam on the surface depends upon the distance of the floodlight from the surface, the angle that the axis of the beam makes with this surface, and the spread of the beam. The beam dimensions, in degrees, are given for all our floodlighting projectors; also, a multiplying factor (F) is given, which, when multiplied by the distance of the projector from the surface, gives the diameter of the beam pattern on that surface, provided the beam is directed perpendicularly to the surface. In cases where the beam axis is not perpendicular to the surface to be lighted, the beam pattern can best be determined graphically, actually outlining it on a plan or elevation drawing.

In this manner, a projector may be selected which satisfies the requirements of coverage. To determine the number of projectors needed, use this formula:

$$\text{No. of projectors} = \frac{\text{area} \times \text{footcandles}}{\text{beam lumens of one projector}}$$

Where the beam pattern exceeds the surface area, it is necessary to increase the number of projectors to make up for the light which is wasted.

Several combinations of projector, door glass, reflector, and lamp will often be found to be suitable. The least

expensive combination of these should be used. This will usually be the combination which gives the largest beam pattern that does not exceed the surface area.

Color

Floodlights equipped with colored door glass have their lumen output reduced by the additional absorption of this glass. The transmission factors for colored door glasses are:

Red .....	.15
Amber .....	.50
Blue .....	.04
Green .....	.12

The transmission factor for a particular color, when multiplied by the beam lumens of a projector, gives the beam lumens of the projector with a door glass of that color. Thus, the beam lumens for the AL-30 projector with a plain, clear door glass is 3796, while for the same projector with a red door glass the rating is 3796 times 0.15 or 570.

Associated with the color problem is that of heating. The light absorbed by a colored door glass is converted into heat, and thereby raises the temperature of the colored glass greatly above that of a clear glass. To keep the operating temperature of colored door glass within a safe range, it is sometimes necessary to limit the size of lamp allowable with colored door glass. Where such limitations are necessary, allowable sizes of lamps are listed with the description of the projector.

Incandescent Lamps

Many of our floodlights are designed to accommodate either general-service or floodlighting MAZDA lamps. The floodlighting lamp has a more concentrated filament than the general-service lamp and therefore lends itself to the formation of a more sharply defined and narrower beam. However, this characteristic is obtained at a sacrifice in lamp life, a limitation in burning position, and a higher lamp cost. The floodlighting MAZDA lamp should therefore be used only when the application requires a narrow beam of high maximum candlepower.

In the open-type floodlight the lamp is exposed to the elements, and there is a possibility of its being damaged when rain or snow strikes the heated bulb. This hazard is minimized by the use of hard-glass lamps. It is therefore recommended that such lamps be used in open-type floodlights.

Color plates are frequently used with clear door glasses. These plates may be fitted into enclosed-type projectors by means of clips provided in the units for this purpose. They are particularly adapted to installations where it is desired to change colors periodically.

Tables for Solving Floodlighting Problems

DATA FOR LAMPS USED WITH VARIOUS TYPES OF FLOODLIGHTS

Lamp Size in Watts	Bulb	Rated Initial Lumens	Rated Average Life (hours)	Base	Light Center in Inches	Maximum Overall Length in Inches	Position of Burning	List Price*	
								Hard Glass	Soft Glass
General-service Lamps									
100	A-23	1510	750	Medium	4 ³ / ₈	6 ¹ / ₁₆	Any		\$0.25
150	PS-25	2400	1000	Medium	5 ¹ / ₄	6 ¹⁵ / ₁₆	Any		.50
200	PS-30	3400	1000	Medium	6	8 ¹ / ₈	Any		.70
300	PS-35	5490	1000	Mogul	7	9 ⁷ / ₁₆	Any		1.15
500	PS-40	9800	1000	Mogul	7	9 ¹³ / ₁₆	Any		1.75
750	PS-52	14550	1000	Mogul	9 ¹ / ₂	13 ¹ / ₈	Any	\$8.75	3.75
1000	PS-52	20700	1000	Mogul	9 ¹ / ₂	13 ¹ / ₈	Any	9.25	4.00
1500	PS-52	33000	1000	Mogul	9 ¹ / ₂	13 ¹ / ₈	Any	10.25	5.75
2000	PS-52	44000	1000	Mogul	9 ¹ / ₂	13 ¹ / ₈	Any	13.00	

Floodlighting Lamps									
100	P-25	1050	800	Medium	3	4 3/4	Any position except within 45° of vertically base up		1.15
250	G-30	3700	800	Medium	3	5 1/8			1.75
400	G-30	6600	800	Medium	3	5 1/8			3.50
500	G-40	8650	800	Mogul	4 1/4	7 1/16			3.25
1000	G-40	19300	800	Mogul	5 1/4	7 7/8		6.75	
1500	G-48	30300	800	Mogul	5 1/4	8 5/8		10.00	

*These list prices are included for reference only; refer to Incandescent Lamp Department for discounts and current prices.

FLOODLIGHTING INTENSITIES

Application	RECOMMENDED FOOT-CANDLE INTENSITIES	
	Good Practice	Minimum
Office buildings.....	See "Buildings" table	See "Buildings" table
Hotels.....		
Banks.....		
Stores.....		
Theaters.....		
Factories.....		
Power stations.....		
Monuments.....		
Public buildings.....		
Decorative and spectacular effects (Christmas trees, flags, etc.).....	20.0	10.0
Landscapes.....	15.0	5.0
Stained-glass windows.....	30.0	15.0
Billboards.....	30.0	10.0
Signs.....	30.0	10.0
Stacks and water tanks.....	12.0	8.0
Swimming pools.....	6.0	3.0
Bathing beaches.....	1.0	0.5
Horseshoe pitching.....	4.0	2.0
Baseball.....	12.0	6.0
Football.....	12.0	6.0
Soccer field.....	12.0	6.0
Stadiums.....	12.0	6.0
Trap shooting.....	15.0	10.0
Playground.....	4.0	2.0
Golf greens.....	10.0	6.0
Playground baseball.....	8.0	6.0
Winter sports.....	2.0	1.0
Pageants.....	20.0	5.0
Carnivals.....		
Expositions.....		
Circuses.....		
Fairs.....		
Quarries and shipyards.....	6.0	2.0
Construction work.....	6.0	4.0
Dredging.....	2.0	1.0
Railroad yards.....		
(a) Classification.....	0.15	0.1
(b) Mechanical-retarder areas.....	1.0	0.5
Docks, loading platforms, etc.....	3.0	2.0
Aqueducts.....	1.0	0.5
Reservoirs.....	1.0	0.5
Mines.....	1.0	0.5
Gasoline filling stations.....		
(a) Buildings and pumps.....	15.0	10.0
(b) Yard and driveways.....	4.0	2.0
Roadside stands and houses.....	4.0	2.0
Parking areas.....	1.0	0.5
Tourist camps.....	2.0	0.5

FLOODLIGHTING INTENSITIES

Application	RECOMMENDED FOOT-CANDLE INTENSITIES	
	Good Practice	Minimum
Real-estate developments.....	10.0	5.0
Public auctions.....	10.0	5.0
Air Advertising.....	30.0	15.0
Farms.....	1.0	0.5
Barns.....	1.0	0.5
Chicken houses.....	1.0	0.5
Orchards.....	1.0	0.5

BUILDINGS

Building Surfaces	Reflection Factors Per Cent	RECOMMENDED FOOT-CANDLE INTENSITIES		
		A	B	C
White terra cotta.....	60-80	15	10	5
Cream terra cotta.....				
Light marble.....				
Light gray limestone.....	40-60	20	12	7
Bedford limestone.....				
Buff limestone.....				
Smooth buff face brick.....				
Briar hill sandstone.....	20-40	25	15	10
Smooth gray brick.....				
Medium gray limestone.....				
Common tan brick.....				
Dark field gray brick.....	10-20	30	18	12
Common red brick.....				
Brownstone.....				

A—Buildings on white ways; intensive street lighting; streets with many conflicting signs and light sources; lower portions of buildings falling under Class B locations.

B—Medium-intensity white ways; secondary business streets with few conflicting signs, etc.

C—Very little conflicting light, such as on residential streets, parks, lighted highways, etc.

The above suggestions can be only general and it will be found necessary to modify them in many instances to meet local conditions. Careful consideration must be given to existing illumination which will affect the solution of the problems. Propositions involving special conditions should be referred to the Illuminating Engineering Laboratory with complete information on conditions.

G-E Novalux Electric Fountains



A three-projector lily-pond fountain in a garden

The variety in water and illuminating effects in an electric fountain is unlimited, and the nature and scale of the design are limited only by the designer's ingenuity and the funds available. General Electric lighting engineers have designed types ranging from the modest lily-pond fountains for the home garden, and fountains for small estates and public parks, to the magnificent displays and cascades found in some of the largest cities. Drawings, specifications of equipment, and descriptive listings of all types of fountains will be sent on request.

LILY-POND 3-PROJECTOR FOUNTAIN

This small electric fountain (Drawing M-25398-H) has been designed to incorporate many of the features of the larger types, but to be of such size that it can be installed within a limited space. It is adaptable to gardens, small parks, and areas where there is a minimum of extraneous light, and where space or funds will not permit the use of a larger fountain.

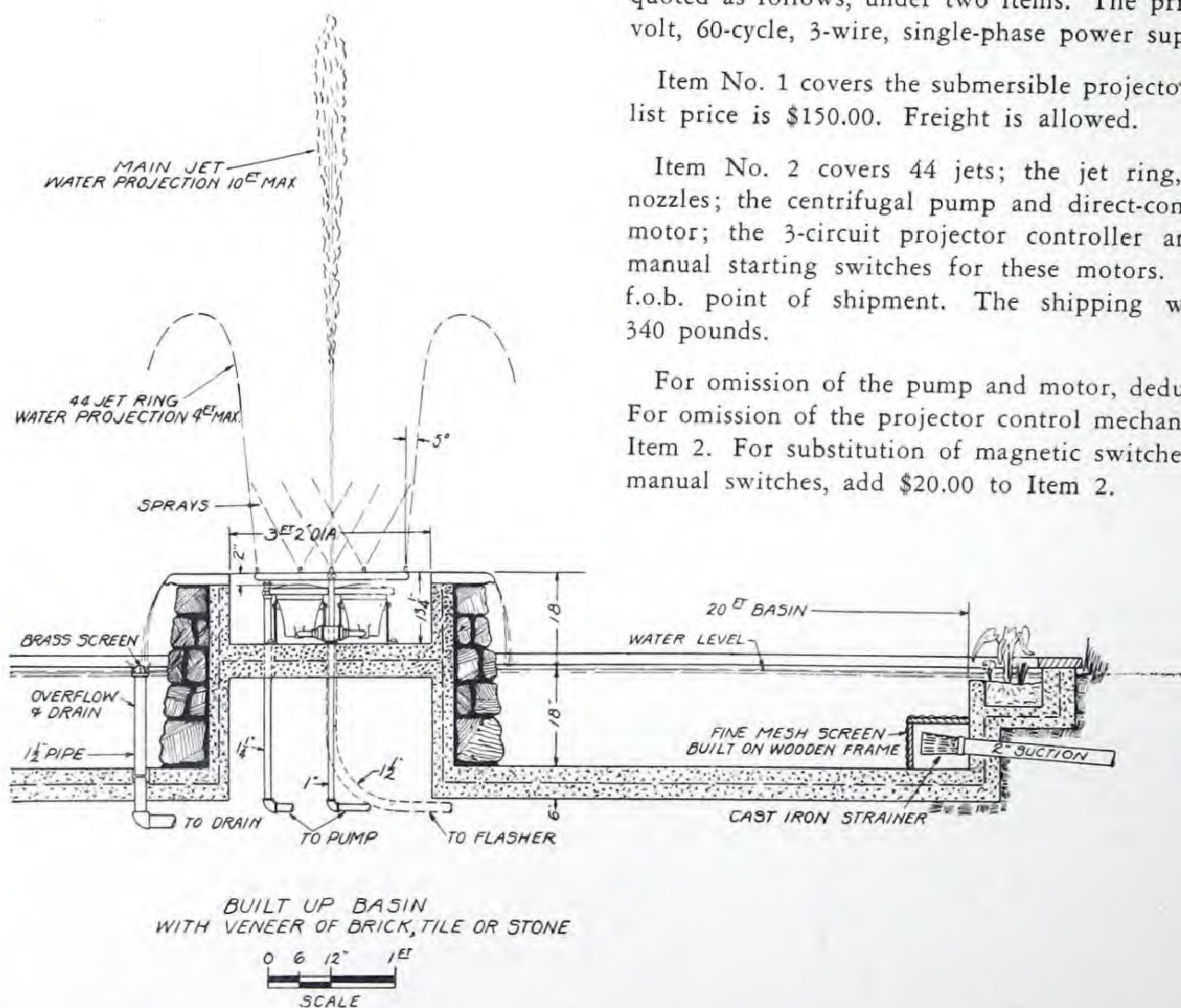
It includes three projectors, Type AL33ED, one red and one green of 250 watts each, and one blue of 400 watts. The average lighting load is 505 watts. There are seven changing lighting effects, but the water is continuous in its action.

The equipment necessary for the Lily-Pond 3-Projector Fountain is quoted as follows, under two items. The price is based on 110/220-volt, 60-cycle, 3-wire, single-phase power supply.

Item No. 1 covers the submersible projectors mentioned above. The list price is \$150.00. Freight is allowed.

Item No. 2 covers 44 jets; the jet ring, fire nozzle, and spray nozzles; the centrifugal pump and direct-connected, $\frac{3}{4}$ -h.p., 220-volt motor; the 3-circuit projector controller and 110-volt motor; the manual starting switches for these motors. The list price is \$290, f.o.b. point of shipment. The shipping weight is approximately 340 pounds.

For omission of the pump and motor, deduct \$127.00 from Item 2. For omission of the projector control mechanism, deduct \$70.00 from Item 2. For substitution of magnetic switches with push buttons for manual switches, add \$20.00 to Item 2.



Sketch of the lily-pond fountain. For complete drawing, write for M-25398-H

G-E Novalux Electric Fountains

ESTATE-TYPE 9-PROJECTOR FOUNTAIN

The Estate-type fountain is particularly adapted to formal gardens. It is available in a cast-iron basin, as shown in the photograph, or in a built-up basin, as shown in the photograph of the lily-pond fountain. It includes nine projectors, Type AL33ED, three red and three green of 250 watts each, and three blue of 400 watts. The average lighting load is 1540 watts. There are seven changing lighting effects and seven changing water effects.

The equipment necessary for the Estate-Type 9-Projector Fountain is quoted as follows under two items. The price is based on 110/220-volt, 60-cycle, 3-wire, single-phase power supply.

For the fountain with cast-iron basin, (Drawing M-25389-A), Item No. 1 covers the submersible projectors mentioned above. The list price is \$432.00. Freight is allowed.

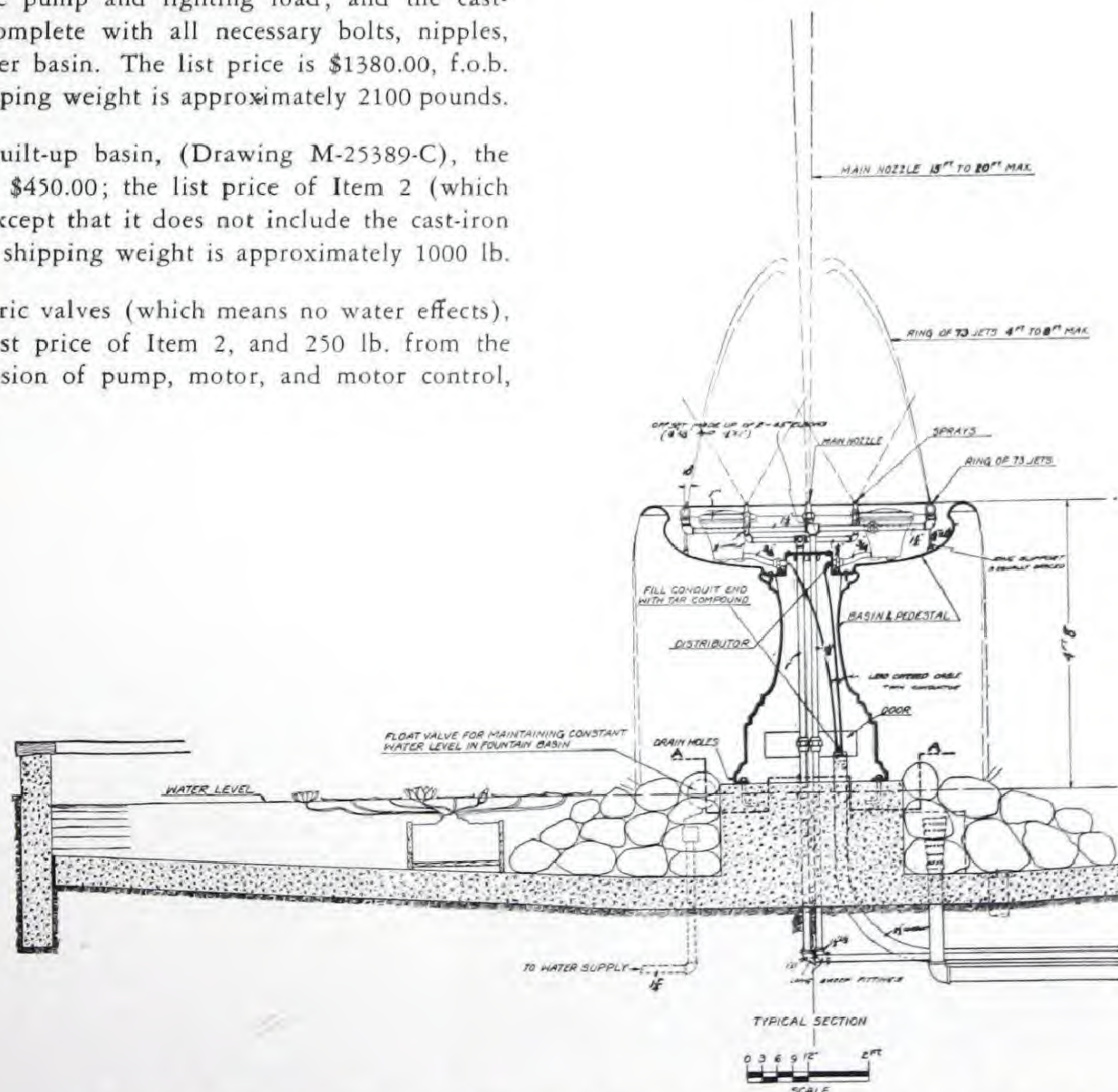
Item No. 2 for this fountain includes 73 jets; the jet ring, fire nozzle, and spray nozzles; the centrifugal pump and 3-hp., 220-volt motor; the electric controller for three lighting and three valve circuits, complete; three Thrustor-operated electric valves; magnetic push-button control for the pump and lighting load; and the cast-iron pedestal and basin, complete with all necessary bolts, nipples, and the piping for the upper basin. The list price is \$1380.00, f.o.b. point of shipment. The shipping weight is approximately 2100 pounds.

For the fountain in a built-up basin, (Drawing M-25389-C), the list price of Item No. 1 is \$450.00; the list price of Item 2 (which is the same as the above, except that it does not include the cast-iron basin) is \$1215.00, and the shipping weight is approximately 1000 lb.

For omission of the electric valves (which means no water effects), deduct \$450.00 from the list price of Item 2, and 250 lb. from the shipping weight. For omission of pump, motor, and motor control, deduct \$175.00 and 240 lb.

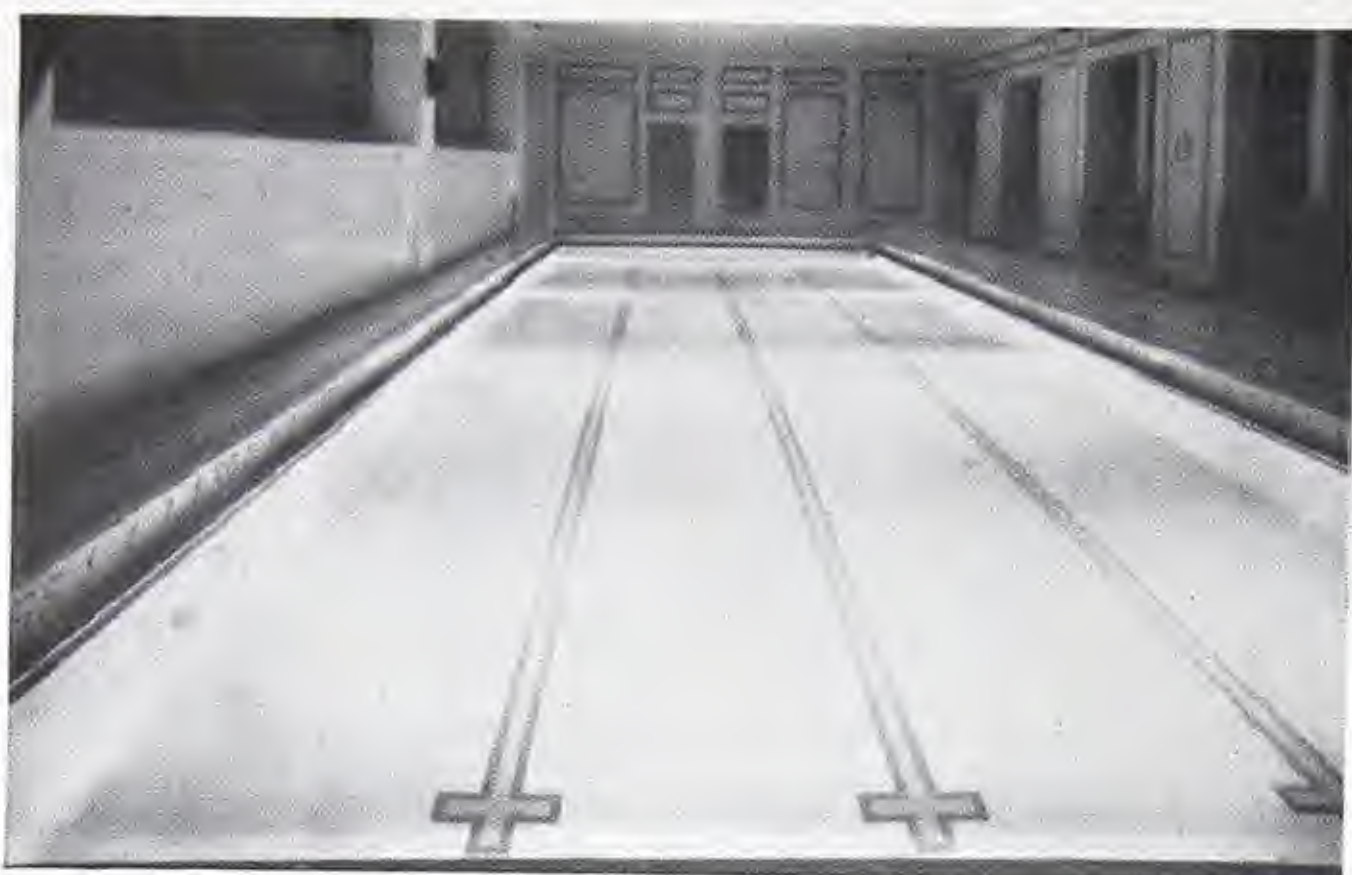


A nine-projector estate-type fountain in a cast-iron basin. This fountain is also available in a built-up basin, similar to the one shown on the opposite page.



Sketch of the estate-type fountain. For complete drawing, write for M-25389-A and M-25389-C

Swimming Pool Lighting



An indoor swimming pool, lighted by the dry-niche underwater system.



An outdoor swimming pool, lighted by the wet-niche underwater system.



An outdoor swimming pool, lighted by copper-bronze enclosed floodlights.

The popularity of swimming as a healthful recreation continues to grow, and outdoor and indoor pools are being included in modern recreational centers and buildings. Furthermore, lighting facilities are being provided in order that the pools may be used at night as well as by day, with equal facility and safety. There are several systems of lighting in vogue for swimming pools, the choice depending upon whether the pool is outdoors or indoors, and upon its general construction.

UNDERWATER LIGHTING

The sparkling beauty of a pool lighted from beneath its surface, and the novelty of viewing the movements of the swimmer are perhaps secondary to the added safety afforded by such lighting. The swimmer is always in view, and in the event of accident may readily be located and brought to the surface. A pool lighted by the underwater method may be inspected at all times to determine its general condition and cleanliness.

A further novelty readily introduced into this system of lighting, is the use of colored door glasses to give the pool the appearance of a tank of colored liquid. While this is not recommended as a permanent feature, it is appropriate on special occasions as an entertaining spectacle.

The underwater system of lighting may be accomplished in either of two ways, which are referred to as the dry-niche method and the wet-niche method. The character of the pool determines largely the type of system that may be employed to best advantage.

Dry-niche System

This system most completely fulfills the requirements of the indoor brick- and tile-finish pool and, as the name implies, houses the floodlight in a niche from which water is excluded by a water-tight port-hole ring. This ring is furnished either chromium-plated or natural-bronze, thus giving it a finished appearance in keeping with the general construction of the pool. The projector is serviced from the rear by means of a manhole or passageway. It is customary to employ chemical purification of the water in swimming pools, and for this reason the corrosion-resistant bronze casting, either chromium or natural finish, is recommended, although aluminum will be furnished on request. The lighting unit furnished for dry-niche lighting is our Type AL-39 and includes the following items: Porthole Assembly (bronze alloy), Casing (bronze alloy), Skeleton Projector

Swimming Pool Lighting

(silvered-glass reflector), and Mounting (steel, cadmium-plated).

The Type AL-39 dry-niche porthole assembly and projector is designed for either 500-watt or 1000-watt floodlighting MAZDA lamps (see pages 12 and 13.)

Wet-niche System

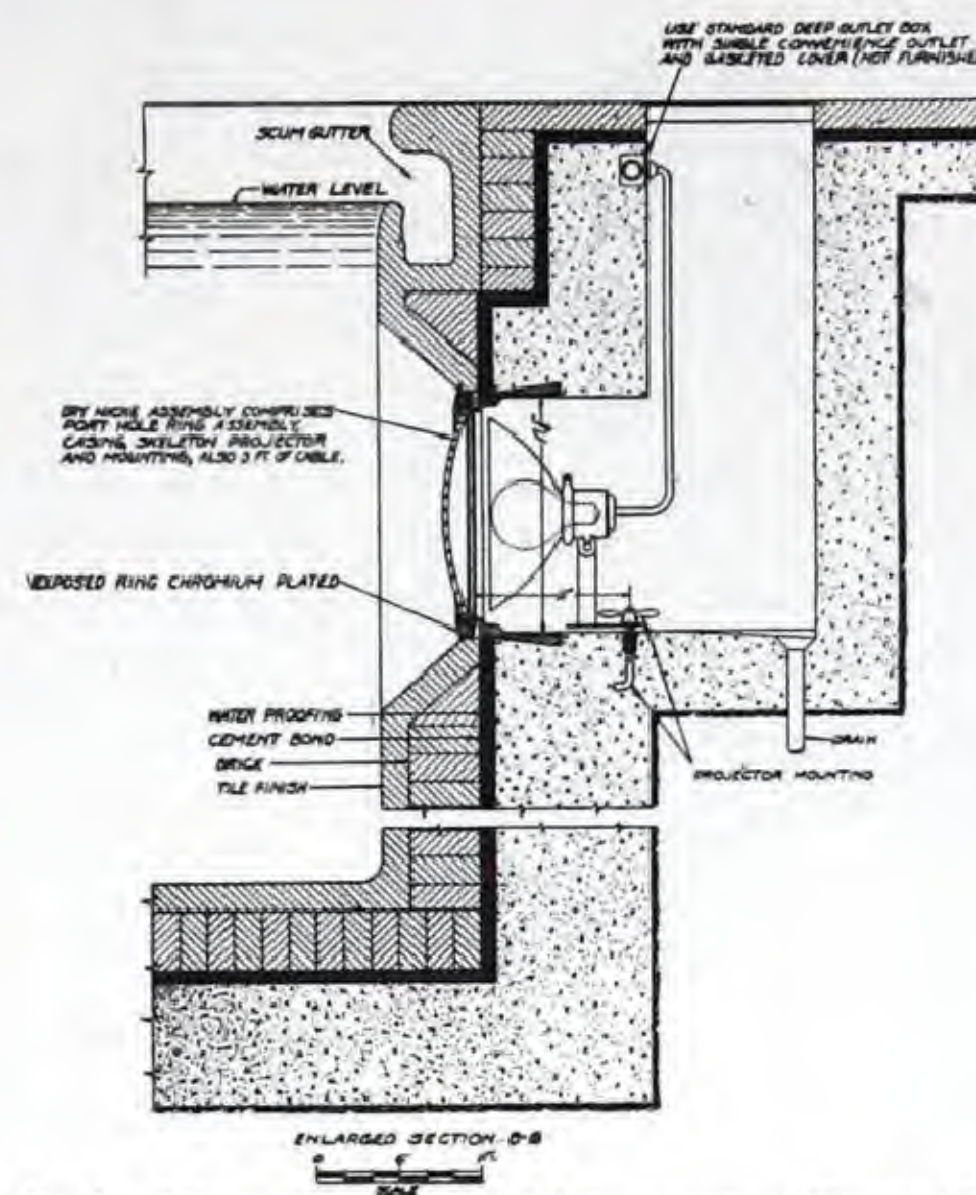
In the wet-niche system an underwater type of floodlight is installed in the niche and the water is permitted to circulate around it. This type of projector should be drained and breathed in order to carry off moisture condensed from the air and to equalize the pressure inside and outside the projector to prevent seepage through the gaskets. Floodlights in this system are serviced by removing them from the niche in which they are supported by suspension hooks engaging bracket arms, and lifting them out of the pool. A coiled flexible conductor and a hose make it unnecessary to break the electrical and drainage connections when servicing.

The wet-niche system is adapted to outdoor pools having concrete bulkheads, and to indoor and outdoor pools where the added appearance of the dry-niche system may be given up in favor of the slightly lower cost of installing the wet-niche system. The wet-niche system is available in 250/400-watt and 500/1500-watt units. In the former, the Type AL-33 submersible floodlight is furnished; and in the latter, the Type AL-41. Both of these floodlights are available in either cast bronze or cast aluminum, but the cast bronze is recommended because of the corrosive effect on aluminum of chemically treated water (see pages 12 and 13).

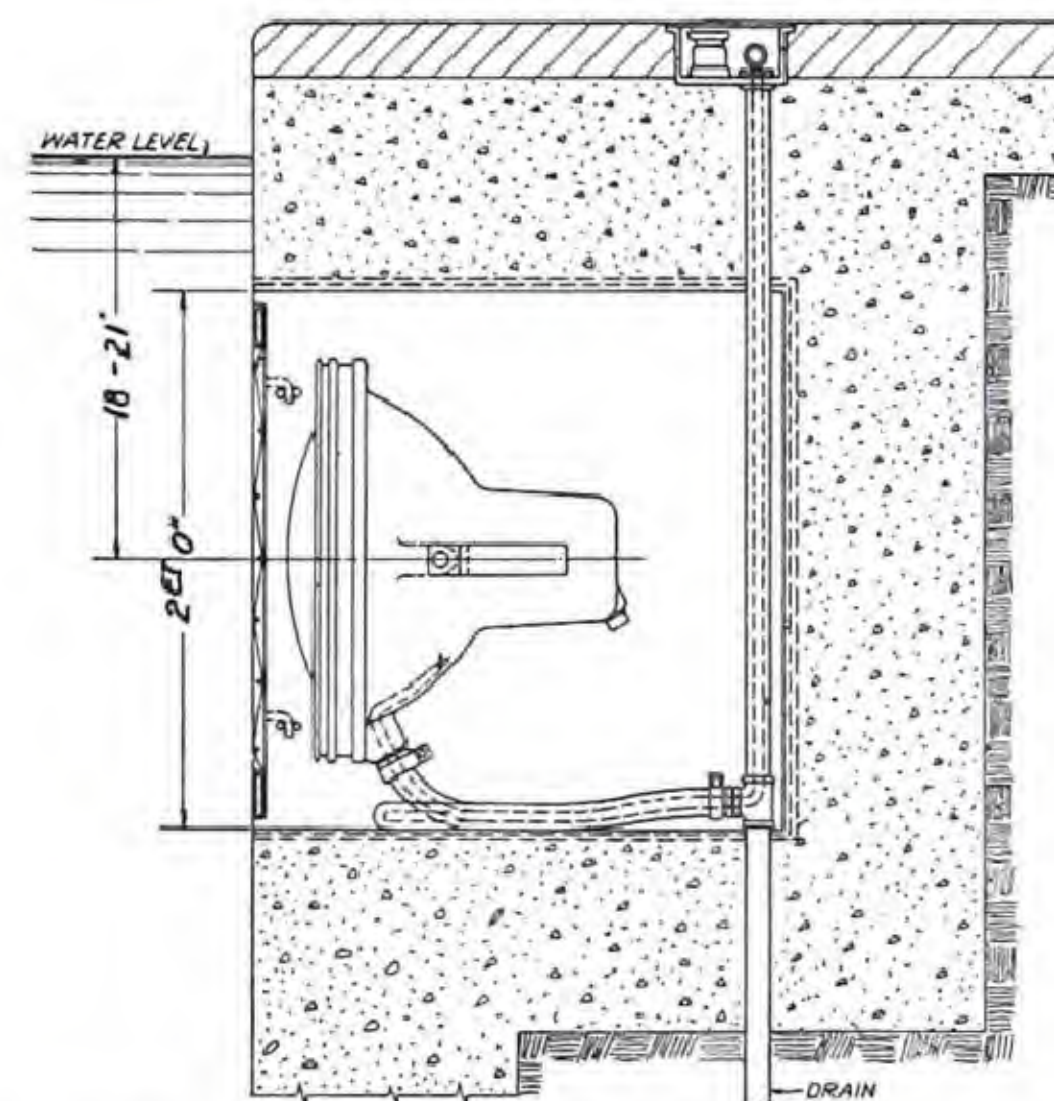
OVERHEAD LIGHTING

Many outdoor swimming pools are not suited to the underwater system of lighting and may be lighted by one of the many system of overhead lighting available. Layout drawings showing typical systems employing floodlighting projectors (open and enclosed types) and styles of ornamental luminaires will be sent on request. A wide range of choice is open to the architect or engineer confronted with the problem of meeting local conditions and environments.

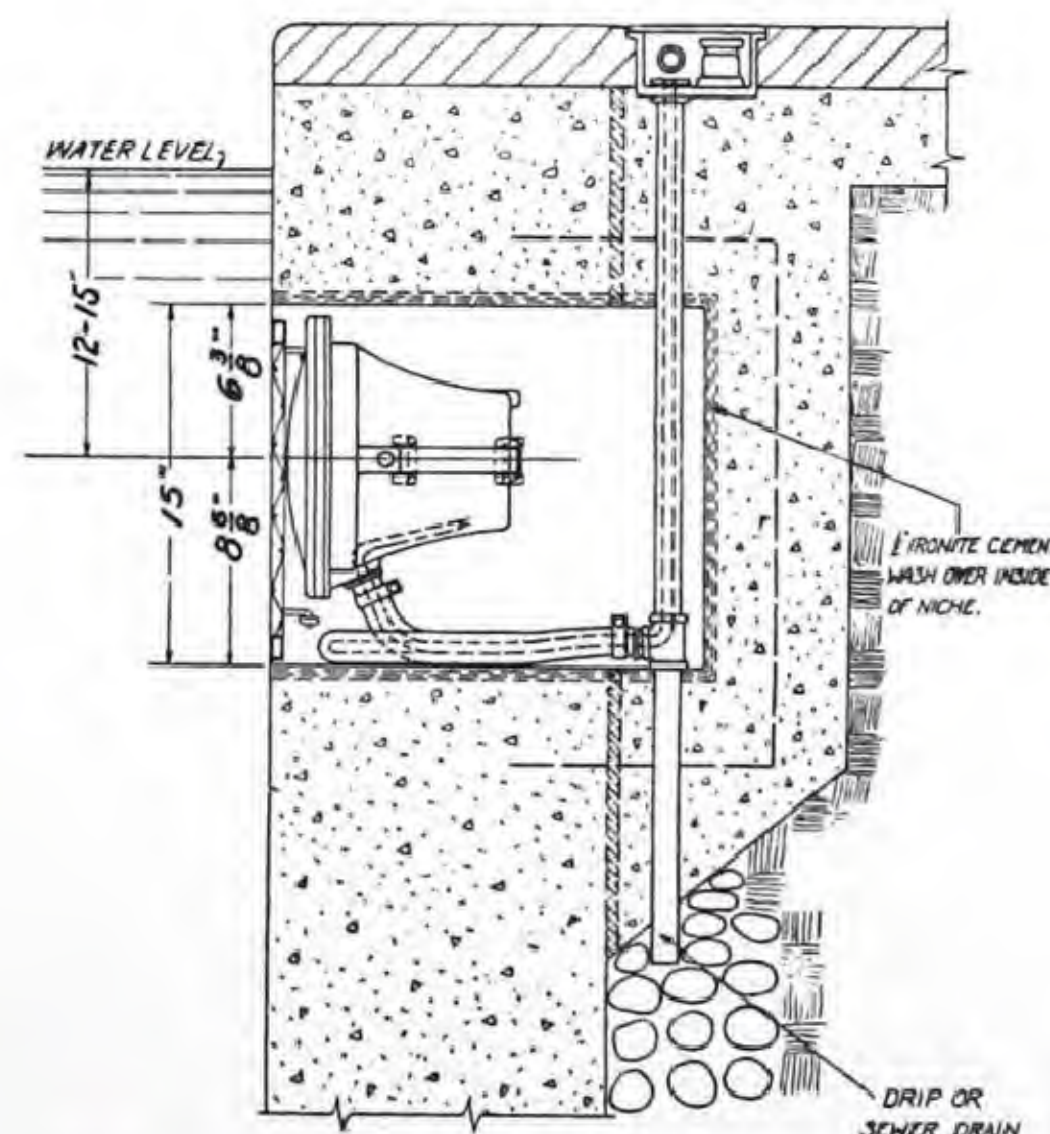
A general description of the floodlights used in swimming-pool lighting will be found on the following pages. Detailed specification of the lighting units, and recommendations for specific installations, will be furnished interested architects and engineers on application.



Method of installing dry-niche system (Type AL-39) of underwater lighting.



Wet-niche system of underwater lighting using Type AL-41 projectors.



Wet-niche system of underwater lighting using Type AL-33 projectors.

G-E Novalux Submersible Projectors

for WET-NICHE SYSTEM
Swimming pools and electric fountains
250/400 Watts

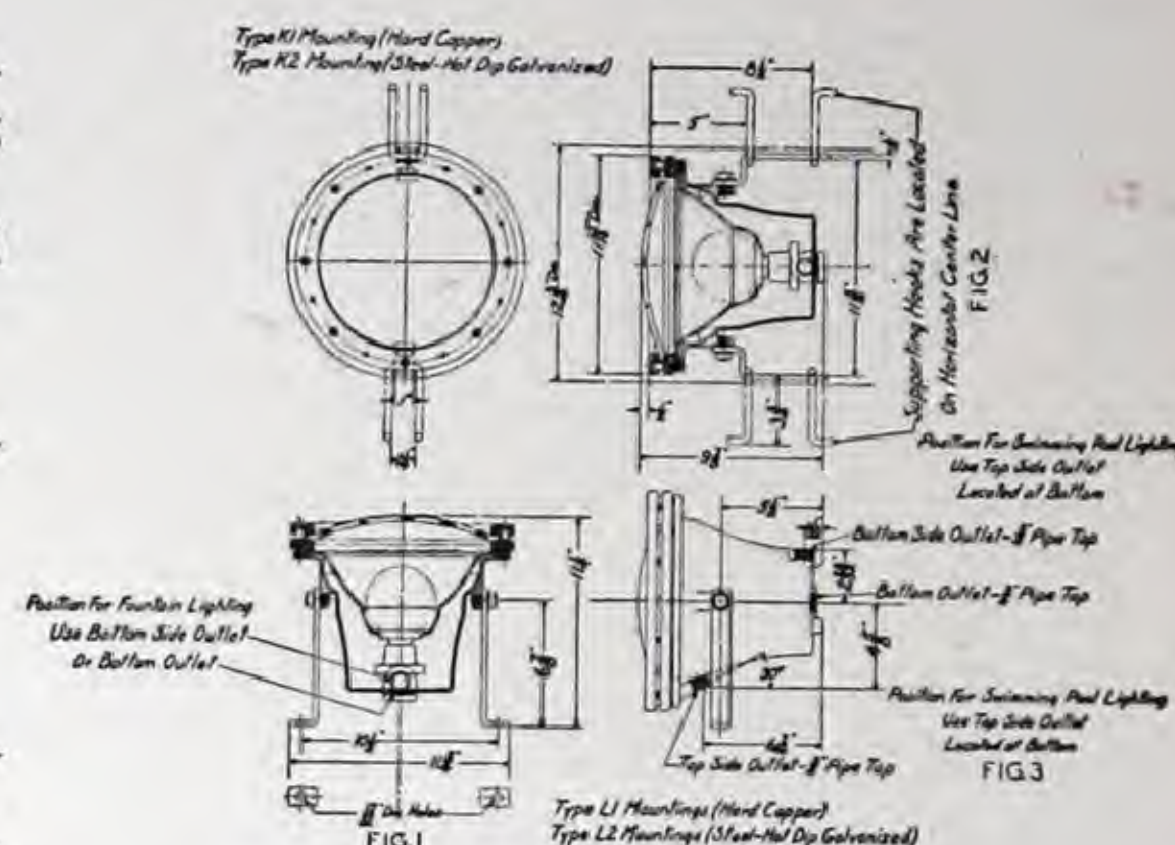


Type AL-33
Submersible Projector

- MAIN ADVANTAGES**
- (a) Flexible mounting to provide removal of projector for relamping without draining pool.
 - (b) Breathing and draining provided to insure satisfactory operation.
 - (c) Heat-resisting door glass.
 - (d) Silvered-glass reflector with heat-resisting backing.

PHOTOMETRIC DATA
Types AL-33-ED and -FD, 250W G-30
Mazda Lamp

Door Glass	Beam Lumens	Beam Spread in Degrees	
		Vertical	Horizontal
Plain	1418	20	19.8
Heavily Stippled	1894	80	
Spreadlight	1741	23.6	49



Type AL-33 Submersible Projector

DESCRIPTION

Types: AL-33-ED cast-aluminum for electric fountains, AL-33-FD cast-bronze for swimming pools.

Lamps: 100-watt P-25 floodlighting MAZDA lamp for projector in air; 250- or 400-watt G-30 floodlighting MAZDA lamp for projector under water.

Casing: One-piece cast-silicon-aluminum with two lugs for mounting cast integral with casing (Type AL-33-ED). One-piece cast-bronze-alloy with two lugs for mounting cast integral with casing (Type AL-33-FD). Each casing has three 3/4-inch pipe-tapped holes located as follows: (1) center of bottom; (2) side at bottom for electric fountains; (3) side at top for swimming pools. Pipe plugs furnished for two of above holes.

Door glasses: Convex, 10 3/8 inches in diameter, heat-resisting clear and colored.

Reflector: Silvered-glass composite-type with 8 1/4-inch effective diameter and heat-resisting protective backing.

Mountings: Fixed angle brackets of hard copper for permanent mounting in fountains and swimming pools (Fig. 1 and 3). Bracket arms and suspension hooks of hard copper to permit removal of projector for servicing in swimming pools (Fig. 2). Mountings for bronze projectors are natural-finish—for aluminum projectors mountings are cadmium-plated.

Current-carrying cable: No cable furnished except for servicing models 2AL33EDK1 and 2AL33FDK1—these types furnished with 15 feet of 2-conductor No. 16-A.W.G. asbestos-and-rubber-covered cable at no additional cost.

Test: Each projector completely assembled at the factory and tested submerged under water with 4-lb. air pressure on the inside to insure watertightness.

Net weights: Aluminum, 13 pounds; bronze, 16 pounds.

Shipping Weights: Aluminum, 19 pounds; bronze, 22 pounds.

PRICE AND ORDERING DATA

Model No. (Specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL33EDX1	100W P-25 in air; 250W or 400W G-30 submerged	No mounting for electric fountains (Fig. 1).....	\$45.00
2AL33EDK1		Hard-copper cadmium-plated bracket and hooks (Fig. 2).....	49.00
2AL33EDL1		Hard-copper cadmium-plated angle brackets (Fig. 3).....	47.00
2AL33FDX1	100W P-25 in air; 250W or 400W G-30 submerged	No mounting for electric fountains (Fig. 1).....	55.00
2AL33FDK1		Hard-copper bracket and hooks (Fig. 2).....	61.00
2AL33FDL1		Hard-copper angle brackets (Fig. 3).....	58.00

Notes: Projectors must be submerged in water when lamps are lighted. Cast-bronze projectors must be used where chemicals are present for water purification or when water contains corrosive salts. Above prices include plain, heavily stippled, or 40° Spreadlight clear door glass. Specify type when ordering. Colored door glasses available in plain and heavily stippled red, blue, green, or amber. Specify type and color and add \$3.00 to list price.

for DRY-NICHE SYSTEM

Swimming pools
500/1000 Watts (see page 11 for drawing)

PHOTOMETRIC DATA—The photometric characteristics of the AL-39-E and AL-39-F units are identical with the Type AL-30-FA with 500-watt G-40 MAZDA lamp, or the AL-31-FA with 1000-watt G-40 MAZDA lamp respectively. Refer to pages 18 and 19.

ADVANTAGES

- (a) In harmony with modern pool construction.
- (b) Projector easily relamped and adjusted from man-hole in rear.
- (c) Ideal from sanitation standpoint.
- (d) Efficiencies higher than systems employing two door glasses.
- (e) Skeleton projector permits placing light source at proper center with respect to door glass.

DESCRIPTION: In the dry-niche system water is excluded by means of a watertight porthole ring available in either chromium-plated or natural bronze and furnished with the projector.

Types: AL-39-FC and -EC—cast aluminum; AL-39-FA and -EA—cast bronze.

Lamps: 500- or 1000-watt floodlighting MAZDA lamps.

Porthole assembly: Includes porthole ring, door glass, and porthole casing. Cast aluminum (Type AL-39-FC

G-E Novalux Submersible Projectors

for DRY-NICHE SYSTEM (Continued)

500/1000 Watts (Continued)

and -EC). Cast bronze (Type AL-39-FA and -EA). Casing to be set in concrete.

Projector: Consists of silvered-glass reflector, effective diameter 14 $\frac{3}{8}$ inches, focusing mechanism, mounting, and 3 feet No. 14-A.W.G. two-conductor asbestos-and-rubber-insulated cable.

Mounting: Base-and-stand — steel, cadmium-plated. Enables reflector to be tilted both up and down.

Port Hole Finish: The standard finish shall be either natural-aluminum (AL-39-FC and -EC) or natural-bronze (AL-39-FA and -EA). If required the exposed portion of the porthole ring will be furnished with a dull chromium-plate finish at no list addition.

PRICE AND ORDERING DATA

Model No. (Specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL39ECC1	500W G-40	Swivel and stand with aluminum porthole assembly.....	\$87.00
2AL39FCC1	1000W G-40	Swivel and stand with aluminum porthole assembly.....	106.50
2AL39ECY1	.....	Porthole assembly only. Cast-aluminum.....	40.00
2AL39EAC1	500W G-40	Swivel and stand with cast-bronze porthole assembly.....	107.00
2AL39FAC1	1000W G-40	Swivel and stand with cast-bronze porthole assembly.....	126.50
2AL39EAY1	.....	Porthole assembly only cast-bronze.....	60.00
2AL39EBY1	.....	Porthole assembly only. Cast-bronze, chromium-plated.....	60.00

for WET-NICHE SYSTEM

Swimming pools and electric fountains

500/1000/1500 Watts

ADVANTAGES

- Special mountings for swimming pool use, which allow projector to be serviced without draining pool.
- Silvered-glass reflector with heat-resisting protective backing.
- Breathing and draining easily provided for through tapped hole.
- Heat-resisting clear and colored door glasses.

PHOTOMETRIC DATA

For photometric characteristics of the types AL-41DA and AL-41EA see AL-31FA with 1000-watt G-40 lamp and AL-30FA with 500-watt G-40 lamp respectively.

DESCRIPTION

Types: AL-41-DA, cast-aluminum. AL-41-EA, cast-bronze.

Lamps: Either type will accommodate 500- or 1000-watt G-40 or 1500-watt G-48 floodlighting MAZDA lamps. Projectors must be submerged before lamps are turned on.

Casing: Type AL-41-DA — One-piece cast-aluminum with mounting lugs cast integral. Type AL-41-EA — One-piece cast-bronze with mounting lugs cast integral. A $\frac{3}{4}$ -inch pipe-tapped hole located at the lowest portion acts as drain, air vent, and cable entrance.

Door glass: 15 $\frac{3}{4}$ inches in diameter, heat-resisting clear and colored types. (Same as for AL-30, AL-31.)

Reflector: Silvered-glass parabolic-type with heat-resisting protective backing and effective diameter of 14 $\frac{5}{8}$ inches.

Mountings: Swivel-and-trunnion type, of cast aluminum (for AL-41-D) and cast-bronze (for AL-41-E), (Fig. 1). Angle brackets of hard copper cadmium-plated for AL-41-D and natural-finish for (AL-41-E), (Fig. 2). Suspension hooks and arms of hard copper, cadmium-plated for AL-41-D and natural-finish for AL-41-E, (Fig. 3).

Current-carrying cable: No cable is furnished with projectors except when suspension hooks and arms are ordered for removing projector, then 15 feet 2-conductor No. 14-A.W.G. rubber-covered cable is included at no addition to list price.

Net weights are:

Type AL-41-D — 37 lb. Type AL-41-E — 45 lb.

Shipping weights are:

Type AL-41-D — 85 lbs. Type AL-41-E — 90 lb.

PRICE AND ORDERING DATA

Model No. (Specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL41DAA1 2AL41DAL1 2AL41DAK1	500W-1000W G-40 1500W G-48	Swivel and trunnion, cast aluminum for electric fountains (Fig. 1).....	\$105.00
		Fixed angle brackets; hard copper, cadmium plated (Fig. 2).....	100.00
		Suspension hooks and arms; copper, cadmium plated for swimming pools (Fig. 3).....	102.00
2AL41EAA1 2AL41EAL1 2AL41EAK1	500W-1000W G-40 1500W G-48	Swivel and trunnion, cast bronze for electric fountains (Fig. 1).....	130.00
		Fixed angle brackets; hard copper, cadmium plated (Fig. 2).....	125.00
		Suspension hooks and arms; copper, cadmium plated for swimming pools. (Fig. 3).....	128.00

Note: Projectors must be submerged in water when lamps are lighted.

Cast-bronze projectors must be used where chemicals are present for water purification or when water contains corrosive salts.

Above prices include plain, lightly stippled, heavily stippled, 40° Spreadlight, or A-sym-etric clear door glass — specify type when ordering.

Plain and heavily stippled colored door glass is available in red, blue, green, or amber. Add \$13.00 list and specify type and color.

G-E Novalux Floodlights

Enclosed 100/150 Watts



Type AL-35
Junior Handy Floodlight

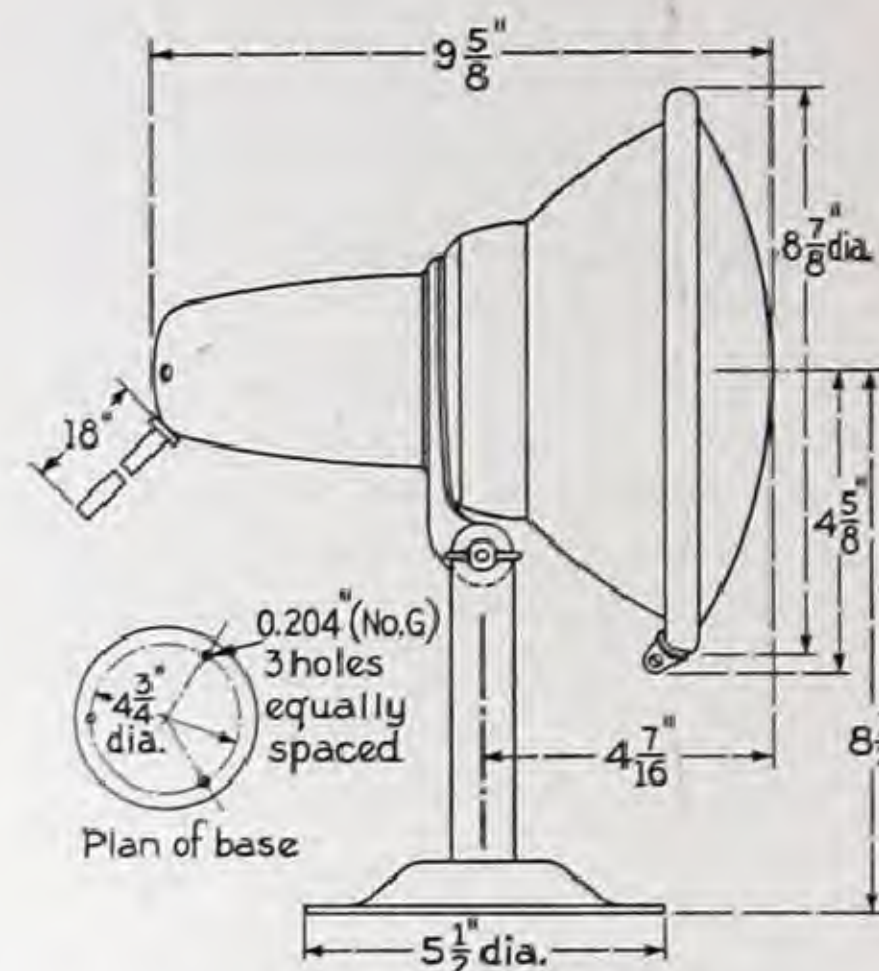
ADVANTAGES

- (a) Adaptability.
- (b) Universal adjustment.
- (c) Handsome appearance.
- (d) Ease of mounting.
- (e) Low first cost.
- (f) Light weight.

PHOTOMETRIC DATA

Model	MAZDA Lamp Inside Frosted	Beam Lumens	Beam Spread in Degrees	F*
Junior Handy....	100 W.	785	114	3.0
Senior Handy....	200 W.	1746	100	2.4

*Distance of floodlight to surface lighted x F = diameter of beam pattern.



Type AL-35
Junior Handy Floodlight

DESCRIPTION

Lamps: 100- or 150-watt general-service MAZDA in AL-35; 200-watt general-service MAZDA in AL-36.

Casings: Sheet-aluminum combination casing and reflector with oxide or etched inner reflecting surface. Supporting cap is separately drawn over a supporting ring. Green external paint finish.

Base and Stand: Swivel-and-stand of formed steel is standard. Green-paint finish. A sharp steel spike is furnished for temporary ground mounting.

Door glass: Junior Handy—plain clear, 8 inches in diameter; Senior Handy—plain clear, 10 inches in diameter, heat-resisting quality glass.

Focusing mechanism: Internal-fixed focus.

Current-carrying cable: 4 feet of 2-conductor rubber-covered lamp cord. Plug is furnished with AL-35.

Net weights: Junior Handy—2 lb., 14 oz. Senior Handy—5 lb.

Shipping Weights: Junior Handy—6 lb. Senior Handy—7 lb.

PRICE AND ORDERING DATA

Type	Model No. with clear door glass	MAZDA Lamp	Mounting	List Price	
				Clear door glass	*Colored door glass
Junior Handy	2AL35AAB1	100-150W	Swivel and stand	\$ 6.50	\$ 7.50
Senior Handy	2AL36AAB1	200W	Swivel and stand	10.50	12.50

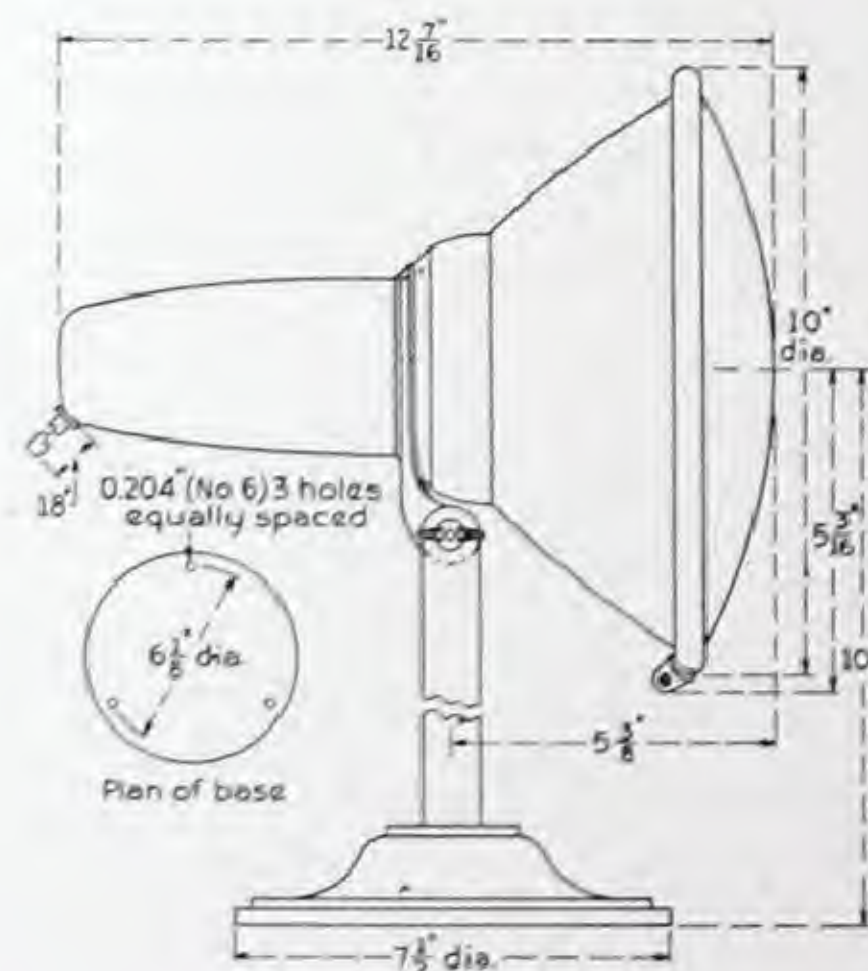
*Colored door glasses available in red, blue, green, and amber.

Enclosed 200 Watts



Type AL-36
Senior Handy Floodlight

See description
and advantages
above.



Type AL-36
Senior Handy Floodlight

G-E Novalux Floodlighting Projectors

Enclosed 300 to 1000 Watts

Open 300 to 1500 Watts

ADVANTAGES

- Variety of flexible mountings for pipes and plane surfaces.
- Light-weight weatherproof construction.
- Universal adjustment from standard mountings.
- Heat-resisting door glass protects lamp. Heat-resisting colored door glasses (Same as for AL-30, -31) are available.

PHOTOMETRIC DATA

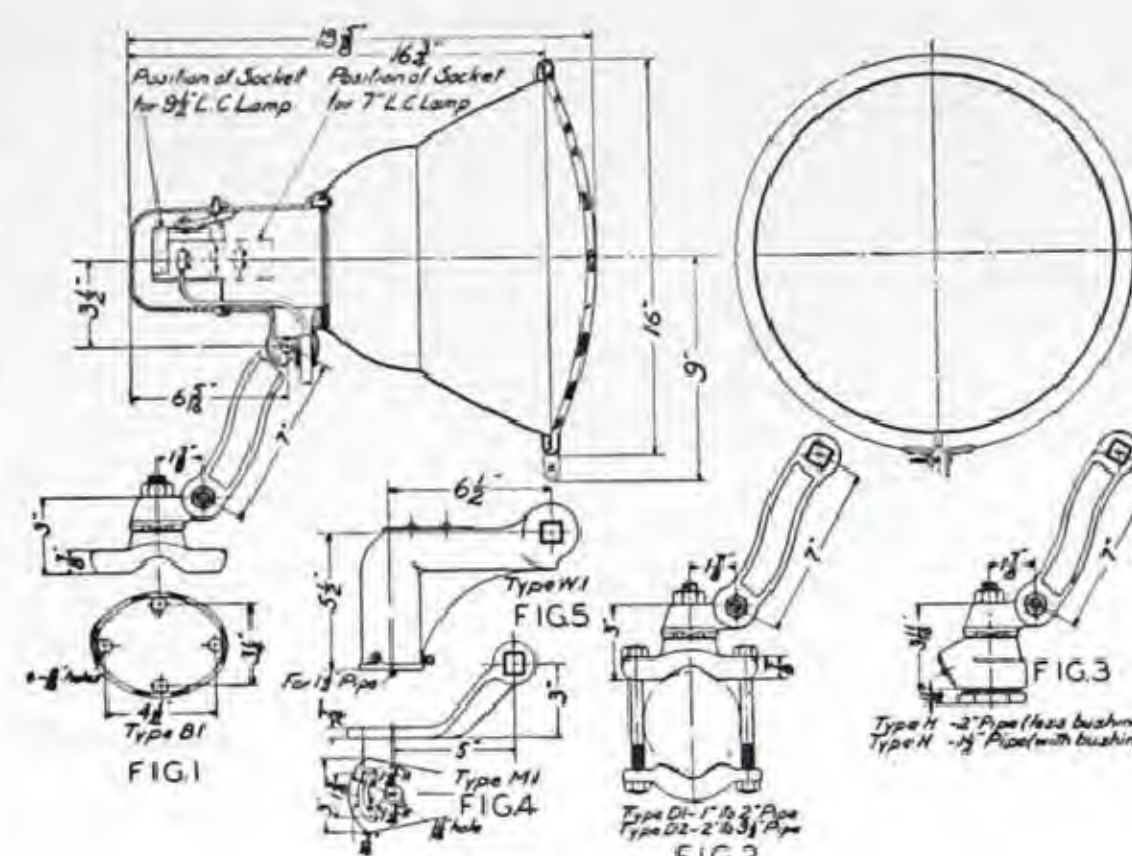
1000W. PS-52 Mazda Lamp

Door Glass	Beam Lumens	Beam Spread in Degrees	F*
Without Glass..	14532	120	3.46
Plain	13250	120	3.46
Lightly Stippled	13512	120	3.46

*Distance of floodlight to surface lighted x F = diameter of beam pattern.



Type AL-43
Exposition Handy Floodlight



Type AL-43
Exposition Handy Floodlight

DESCRIPTION

Types: AL-43-CA and AL-43-DA (enclosed type), and AL-43-CB and AL-43-DB (open type).

Lamps: 300-watt to 1000-watt general-service MAZDA (enclosed), 300-watt to 1500-watt general-service MAZDA (open).

Casing: Sheet-aluminum with aluminum external finish and etched- or oxidized-aluminum finish forming the reflector on the inside. The reflector support and cover cap are of cast aluminum. The door is of sheet aluminum with clamp brackets of formed brass cadmium-plated.

Mounting bracket: Standard is swivel-and-stand of cast aluminum. Also available in malleable-iron hot-dip galvanized.

Bases: Standard is oval-type of cast aluminum. Also available in malleable-iron, hot-dip galvanized. See Fig. 2, 3, 4, and 5 for others available.

Focusing mechanism: Fixed-focus type; socket strap (L-shape) can be inverted and relocated to accommodate either 7-inch or 9 1/2-inch-light-center lamps.

Current-carrying cable: 3 feet No. 14 A.W.G. two-conductor asbestos-and-rubber-insulated cable. Cable passes through watertight cadmium-plated brass stuffing bushing with rubber gasket to insure tight joint.

Net weight is 12 pounds; shipping weight is 24 pounds.

PRICE AND ORDERING DATA

Model No. (specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL43DAB1	300/500 watts	Swivel and stand (Fig. 1).....	\$32.00
2AL43DAD1	300/500 watts	Pipe clamp and base for 1" to 3"-pipes (Fig. 2).....	32.00
2AL43DAH1	300/500 watts	Pipe top for 2"-pipe (Fig. 3).....	32.00
2AL43DAH2	300/500 watts	Pipe top for 1 1/2"-pipe (Fig. 3).....	32.00
2AL43DAM1	300/500 watts	Cross-arm mounting (Fig. 4).....	30.00
2AL43DAW1	300/500 watts	Slip fitter (Internally wired) (Fig. 5).....	34.50
2AL43DBB1	300/500 watts	Same as Model 2AL43DAB1 except less door glass and ring (Fig. 1).....	19.00
2AL43DBD1	300/500 watts	Same as Model 2AL43DAD1 except less door glass and ring (Fig. 2).....	19.00
2AL43DBH1	300/500 watts	Same as Model 2AL43DAH1 except less door glass and ring (Fig. 3).....	19.00
2AL43DBH2	300/500 watts	Same as Model 2AL43DAH2 except less door glass and ring (Fig. 3).....	19.00
2AL43DBM1	300/500 watts	Same as Model 2AL43DAM1 except less door glass and ring (Fig. 4).....	17.00
2AL43DBW1	300/500 watts	Same as Model 2AL43DAW1 except less door glass and ring (Fig. 5).....	21.50
2AL43CAB1	750/1000 watts	Swivel and stand (Fig. 1).....	32.00
2AL43CAD1	750/1000 watts	Pipe clamp for 1" to 3"-pipe (Fig. 2).....	32.00
2AL43CAH1	750/1000 watts	Pipe top for 2"-pipe (Fig. 3).....	32.00
2AL43CAH2	750/1000 watts	Pipe top for 1 1/2"-pipe (Fig. 3).....	32.00
2AL43CAM1	750/1000 watts	Cross-arm mounting (Fig. 4).....	30.00
2AL43CAW1	750/1000 watts	Slip fitter (Fig. 5).....	34.50
2AL43CBB1	750/1500 watts	Same as Model 2AL43CAB1 except less door glass and ring (Fig. 1).....	19.00
2AL43CBD1	750/1500 watts	Same as Model 2AL43CAD1 except less door glass and ring (Fig. 2).....	19.00
2AL43CBH1	750/1500 watts	Same as Model 2AL43CAH1 except less door glass and ring (Fig. 3).....	19.00
2AL43CBH2	750/1500 watts	Same as Model 2AL43CAH2 except less door glass and ring (Fig. 3).....	19.00
2AL43CBM1	750/1500 watts	Same as Model 2AL43CAM1 except less door glass and ring (Fig. 4).....	17.00
2AL43CBW1	750/1500 watts	Same as Model 2AL43CAW1 except less door glass and ring (Fig. 5).....	21.50

Above prices include plain or lightly stippled clear door glass for closed-type floodlight — specify type when ordering.
Colored door glass available in red, blue, green, and amber either plain or heavily stippled — specify color and add \$13.00 to list price.

G-E Novalux Floodlighting Projectors

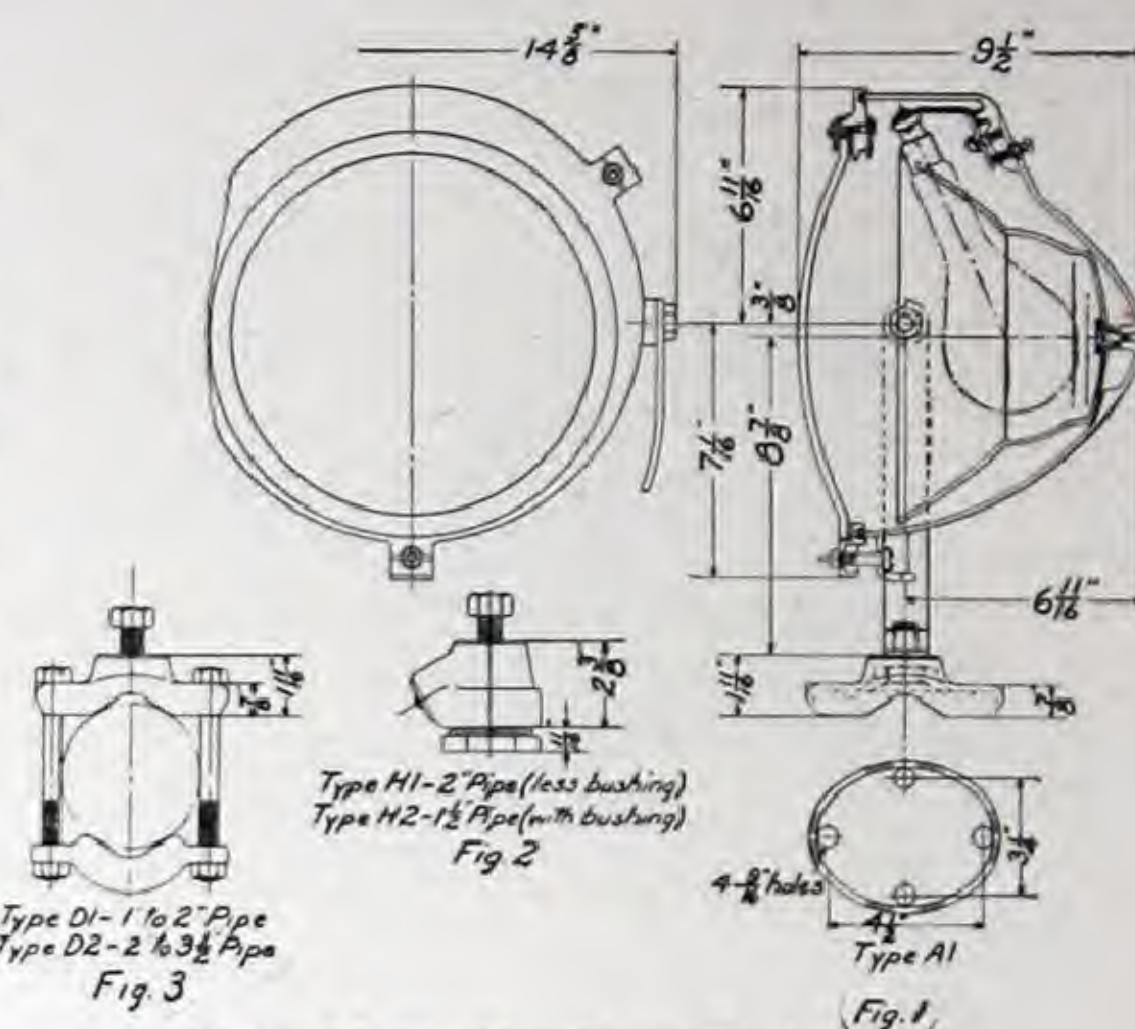
Enclosed 200/250 Watts

ADVANTAGES

- General corrosion-resisting weatherproof and dustproof construction. Good appearance.
- Flexible mountings easily adapted to plane surfaces and pipes. Universal beam-adjustment obtainable.
- Efficient silvered-glass reflector with special heat-resisting backing.
- Heat-resisting clear and colored door glasses in a variety of types, giving flexibility of light control.
- External focusing device which can be locked into required focus.



Type AL-38 Aluminum Projector



Type AL-38 Aluminum Projector

PHOTOMETRIC DATA

Door Glass	MAZDA Lamp	Beam Lumens	Beam Spread in Degrees		F*	
			Vertical	Horizontal	Vertical	Horizontal
Type AL-38-BB						
Plain	200 W. PS-30	1310	25.5	30.2	0.45	0.58
Lightly Stippled	200 W. PS-30	1333	38.5	40.5	0.70	0.74
Heavily Stippled	200 W. PS-30	1706	80.0	58.0	1.68	1.11
40° Spreadlite	200 W. PS-30	1459				
A-sym-metric	200 W. PS-30	1395				
Type AL-38-CB						
Plain	250 W. G-30	1293	14	16	0.25	0.28
Lightly Stippled	250 W. G-30	1390	31	33	0.56	0.59
Heavily Stippled	250 W. G-30	1725	65	69	1.27	1.37
40° Spreadlite	250 W. G-30	1422	18	52	0.32	0.97
A-sym-metric	250 W. G-30	1380	20	49	0.35	0.91

*Distance of floodlight to surface lighted x F = diameter of beam pattern.

DESCRIPTION

Types: AL-38-BB and AL-38-CB.

Lamps: 200-watt general-service MAZDA (AL-38-B); 250-watt floodlighting MAZDA (AL-38-C).

Casing: Cast-aluminum alloy with natural-aluminum finish. (Door and other external parts of aluminum.)

Door glasses: 11 1/4 inches in diameter, heat-resisting clear and colored door glasses (same as AL-29).

Reflector: Silvered-glass with special heat-resisting backing, four-zone composite with effective diameter of 10 3/8 inches.

Mounting: Steel hot-dip galvanized trunnion bracket is standard. See Fig. 2 and 3 for other available mountings.

Bases: Standard oval-type of cast aluminum, except for pipe-clamp mounting where galvanized malleable-iron base is used. Specify pipe size.

Focusing mechanism: External rocker-type. Fig. 1 illustrates normal position for 200-watt lamp (6 in. L.C.) Focusing plate and casing are inverted for 250-watt lamps (3 in. L.C.).

Current-carrying cable: 3 feet of No. 16-A.W.G. 2-conductor asbestos-and-rubber-covered cable is furnished. Cable passes through watertight stuffing bushing and rubber gasket, and is tightened by packing and clamping nuts for waterproof joint.

Net weight is 16 pounds; shipping weight is 20 pounds.

PRICE AND ORDERING DATA

Model No. (specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL38BBA1	200W. PS-30	Swivel and trunnion (Fig. 1)	\$34.00
2AL38BBD1	200W. PS-30	Pipe clamp; 1", 1 1/4", 1 1/2", and 2" pipes (Fig. 3)	
2AL38BBH1	200W. PS-30	Pipe top; 2" pipe; bush for 1 1/2" pipe (Fig. 2)	
2AL38CBA1	250W. G-30	Swivel and trunnion (Fig. 1)	
2AL38CBD1	250W. G-30	Pipe clamp; 1", 1 1/4", 1 1/2", and 2" pipes (Fig. 3)	
2AL38CBH1	250W. G-30	Pipe top; 2" pipe, bush for 1 1/2" pipe (Fig. 2)	

Above prices include plain, lightly stippled, heavily stippled, 40°-Spreadlite, or A-sym-metric clear door glass — Specify type when ordering. Deduct \$5.00 list for omission of door glass.

Colored door glasses available in red, blue, green, and amber, either plain or heavily stippled — specify color and add \$3.00 to list price.

Color plates (inserted in clips behind door glass) available in red, blue, green, and amber — specify color and add \$6.00 to list price.

G-E Novalux Floodlighting Projectors

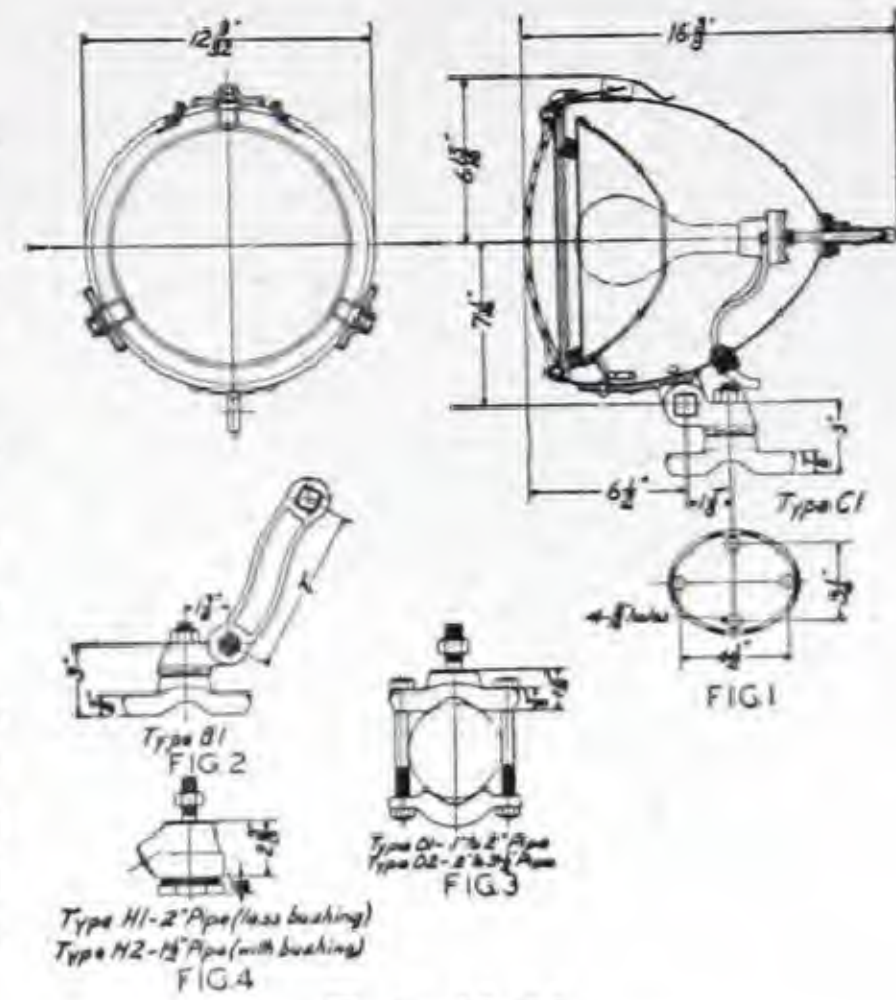
Enclosed 200/250 Watts



Type AL-29
Copper-bronze Projector

ADVANTAGES

- General corrosion-resisting weatherproof construction. Good appearance.
- Flexible mountings easily adapted to plane surfaces and pipes. Universal beam-adjustment obtainable.
- Efficient silvered-glass reflector with special heat-resisting backing.
- Heat-resisting clear and colored door glasses in a variety of types, giving flexibility of light control.
- Push-pull focusing mechanism allows prefocusing of projector at factory for best light utilization. Finer adjustments easily made in field with small wrench furnished. Focusing external and can be locked into required focus.



Type AL-29
Copper-bronze Projector

PHOTOMETRIC DATA

Door Glass	MAZDA Lamp	Beam Lumens	Beam Spread in Degrees		F*	
			Vertical	Horizontal	Vertical	Horizontal
Type AL-29-C						
Plain	200W. PS-30	1435	26	28	0.48	
Lightly Stippled	200W. PS-30	1440		38	0.69	
Heavily Stippled	200W. PS-30	1670		72	1.45	
40° Spreadlite	200W. PS-30	1510	29	58	0.5	1.1
A-sym-etric	200W. PS-30					
Type AL-29-D						
Plain	250W. G-30	1585	18	18.2	0.32	
Lightly Stippled	250W. G-30	1605	31	32	0.56	
Heavily Stippled	250W. G-30	1765		68	1.35	
40° Spreadlite	250W. G-30	1580	21	50	0.37	0.93
A-sym-etric	250W. G-30					

*Distance of floodlight to surface lighted x F = diameter of beam pattern.

DESCRIPTION

Types: AL-29-CA and AL-29-DC.

Lamps: 200-watt general-service MAZDA (AL-29-CA); 250-watt floodlighting MAZDA (AL-29-DC).

Casing: One-piece die-formed sheet copper. Door of sheet copper, riveted; other parts of bronze. All parts natural finish, acid-dipped, with casing and door lacquered.

Door glass: 11 1/4 inches in diameter, heat-resisting clear and colored.

Reflector: Silvered-glass with special heat-resisting backing, 10 3/4 inches in effective diameter. For AL-29-CA, single-zone paraboloidal. For AL-29-DC, four-zone spherical and paraboloidal.

Mounting: Swivel-and-rocker Type C is standard. Fig. 2, 3, 4, 5 above for others available.

Bases: Cast-bronze oval-type is standard. Others available are Types B, D, and H (Fig. 2, 3, and 4).

Focusing mechanism: External push-pull type prefocused at factory.

Current-carrying cable: 3 feet of No. 16 A.W.G., 2-conductor asbestos-and-rubber-covered cable is standard. Cable passes through watertight brass stuffing bushing and rubber gasket, and is tightened by brass packing and clamping nuts for waterproof joint.

Net weight is 16 pounds. **Shipping weight** is 20 pounds.

PRICE AND ORDERING DATA

Model No. (specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL29CAB1	200W. PS-30	Swivel and stand (Fig. 2).....	\$47.00
2AL29CAC1	200W. PS-30	Swivel and rocker (Fig. 1).....	47.00
2AL29CAD1	200W. PS-30	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes (Fig. 3).....	47.00
2AL29CAH1	200W. PS-30	Pipe top, 2" pipe; bush for 1 1/2" pipe (Fig. 4).....	47.00
2AL29DCB1	250W. G-30	Swivel and stand (Fig. 2).....	47.00
2AL29DCC1	250W. G-30	Swivel and rocker (Fig. 1).....	47.00
2AL29DCD1	250W. G-30	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipe (Fig. 3).....	47.00
2AL29DCH1	250W. G-30	Pipe top, 2" pipe; bush for 1 1/2" pipe (Fig. 4).....	47.00

Above prices include plain, lightly stippled, heavily stippled, 40°-Spreadlite, or A-sym-etric clear door glass — specify type when ordering. Deduct \$5.00 list for omission of door glass.

Colored door glasses available in red, blue, green, and amber, either plain or heavily stippled — specify color and add \$3.00 to list price. Color plates (inserted in clips behind door glass) available in red, blue, green, and amber — specify color and add \$6.00 to list price.

G-E Novalux Floodlighting Projectors

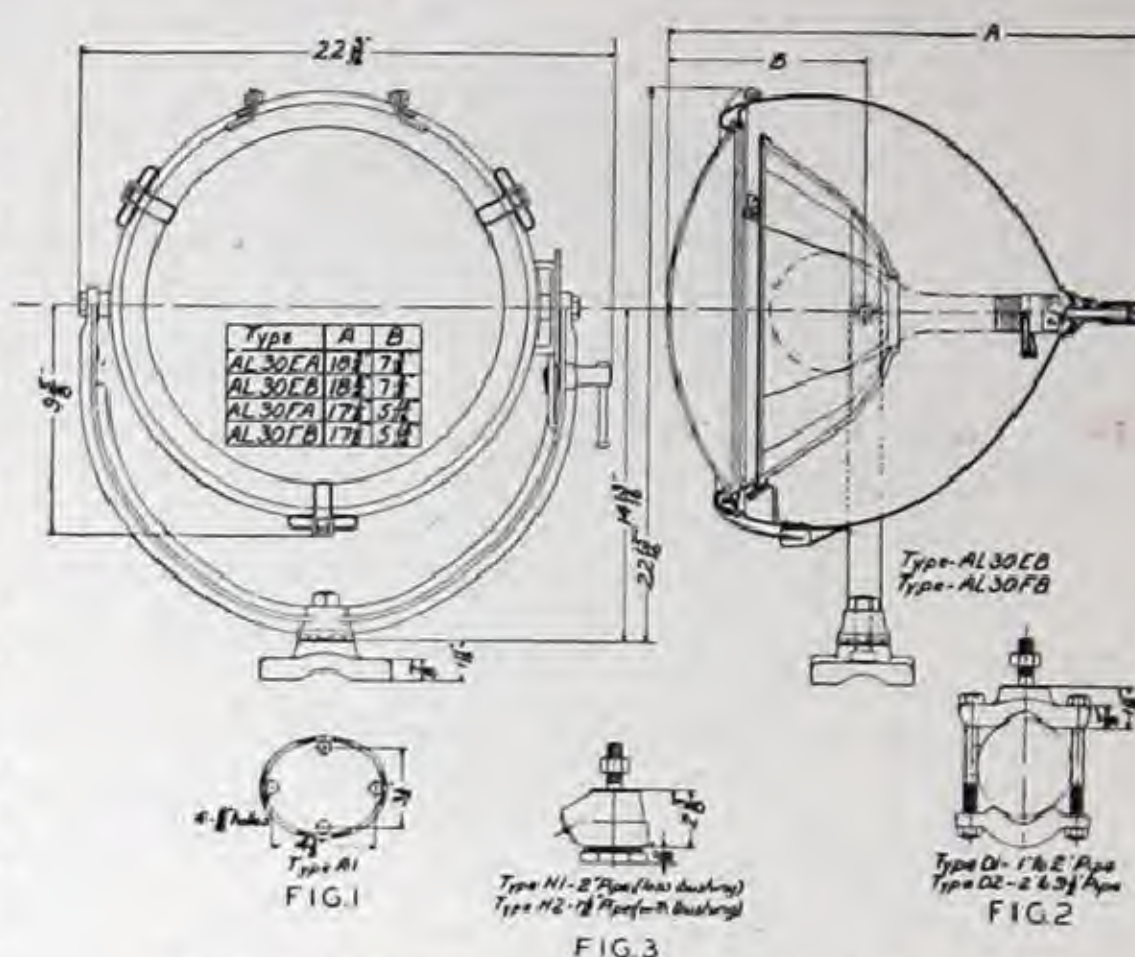
Enclosed 500 Watts

ADVANTAGES

- General corrosion-resisting and weather-proof construction. Good appearance.
- Flexible mountings easily adapted to plane surfaces or pipes. Universal beam adjustment is provided. Positive positioning is provided by clamping shoe which may also serve as relocating device.
- Efficient silvered-glass reflector with special heat-resisting backing.
- Heat-resisting clear and colored door glasses in a variety of types, giving flexibility of light control.
- Push-pull focusing mechanism allows pre-focusing of projector at factory for best light utilization. Finer adjustments easily made in field with small wrench furnished. Focusing external and may be locked into required focus.



Type AL-30
Copper-bronze Projector



Type AL-30-EB and AL-30-FB Projector

PHOTOMETRIC DATA

Door Glass	MAZDA Lamp	Beam Lumens	Beam Spread in Degrees		F*		
			Vertical	Horizontal	Vertical	Horizontal	
Type AL-30-EA							
Plain	500W. PS-40	4255	20.6	26.6	0.37	0.48	
Lightly Stippled	500W. PS-40	4250	30.2	35	0.54	0.63	
Heavily Stippled	500W. PS-40	4760	64	53	1.25	1.00	
40° Spreadlite	500W. PS-40	4190					
A-sym-etric	500W. PS-40	-----	---	---	---	---	
Type AL-30-EB							
Plain	500W. PS-40	5000	60		1.15		
Lightly Stippled	500W. PS-40	5490	72		1.45		
Heavily Stippled	500W. PS-40	5920	98		2.30		
Type AL-30-FA							
Plain	500W. G-40	3980	11.2	13.3	0.20	0.23	
Lightly Stippled	500W. G-40	3840	24.6	25.6	0.44	1.02	
Heavily Stippled	500W. G-40	4250	54	43.0			
40° Spreadlite	500W. G-40	3970			11.4	0.20	0.79
A-sym-etric	500W. G-40	-----	-----	-----	-----	-----	
Type AL-30-FB							
Plain	500W. G-40	4460	44		0.81		
Lightly Stippled	500W. G-40	4610	54		1.04		
Heavily Stippled	500W. G-40	5100	88		1.93		

*Distance of floodlight to surface lighted x F = diameter of beam pattern.

DESCRIPTION

Types: AL-30-EA, -EB; AL-30-FA, -FB.

Lamps: 300- or 500-watt general-service MAZDA (AL-30-EA, -EB); 500-watt floodlighting MAZDA (AL-30-FA, -FB).

Casing: One-piece die-formed sheet-copper. Door frame of sheet copper, other parts of bronze. All parts natural finish, acid-dipped, with casing and door lacquered.

Door glass: 15 3/4 inches in diameter, heat-resisting clear and colored.

Reflectors: Silvered-glass with special heat-resisting backing, 14 5/8 inches in effective diameter. For AL-30-EA, -FA; narrow-angle single-zone paraboloidal. For AL-30-EB, -FB; wide-angle, 3-zone, 36-facet.

Mounting: Cast-bronze swivel-and-trunnion is standard. Positive clamping shoe provides accurate positioning and serves as relocating device.

Bases: Cast-bronze oval base is standard. Others available, Types D and H (Fig. 2 and 3).

Focusing mechanism: External push-pull type pre-focused at factory.

Current-carrying cable: 3 feet of No. 14 A.W.G. two-conductor asbestos-and-rubber-covered cable is standard. Cable passes through watertight brass stuffing bushing and rubber gasket, and is tightened by brass packing and clamping nuts for waterproof joint.

Net weight is 33 pounds. Shipping weight is 41 pounds.

PRICE AND ORDERING DATA

Model No. (specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL30EAA1	500W. PS-40	Swivel and trunnion (Fig. 1).....	\$60.00
2AL30EAD1	500W. PS-40	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes (Fig. 2).....	60.00
2AL30EAH1	500W. PS-40	Pipe top, 2" pipe; bush for 1 1/2" pipe (Fig. 3).....	60.00
2AL30EBA1	500W. PS-40	Swivel and trunnion (Fig. 1).....	60.00
2AL30EBD1	500W. PS-40	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes, (Fig. 2).....	60.00
2AL30EBH1	500W. PS-40	Pipe top, 2" pipe, bush for 1 1/2" pipe (Fig. 3).....	60.00
2AL30FAA1	500W. G-40	Swivel and trunnion (Fig. 1).....	60.00
2AL30FAD1	500W. G-40	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes (Fig. 2).....	60.00
2AL30FAH1	500W. G-40	Pipe top, 2" pipe, bush for 1 1/2" pipe (Fig. 3).....	60.00
2AL30FBA1	500W. G-40	Swivel and trunnion (Fig. 1).....	60.00
2AL30FBD1	500W. G-40	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes (Fig. 2).....	60.00
2AL30FBH1	500W. G-40	Pipe top, 2" pipe, bush for 1 1/2" pipe (Fig. 3).....	60.00

Above prices include plain, lightly stippled, heavily stippled, 40°-Spreadlight, or A-sym-etric clear door glass — specify type when ordering. Deduct \$9.50 list for omission of door glass.

Colored door glasses available in red, blue, green, and amber either plain or heavily stippled. Specify color and add \$9.00 to list.

Color plates (inserted in clips behind door glass) available in red, blue, green, and amber. Specify color and add \$9.00 to list price.

G-E Novalux Floodlighting Projectors

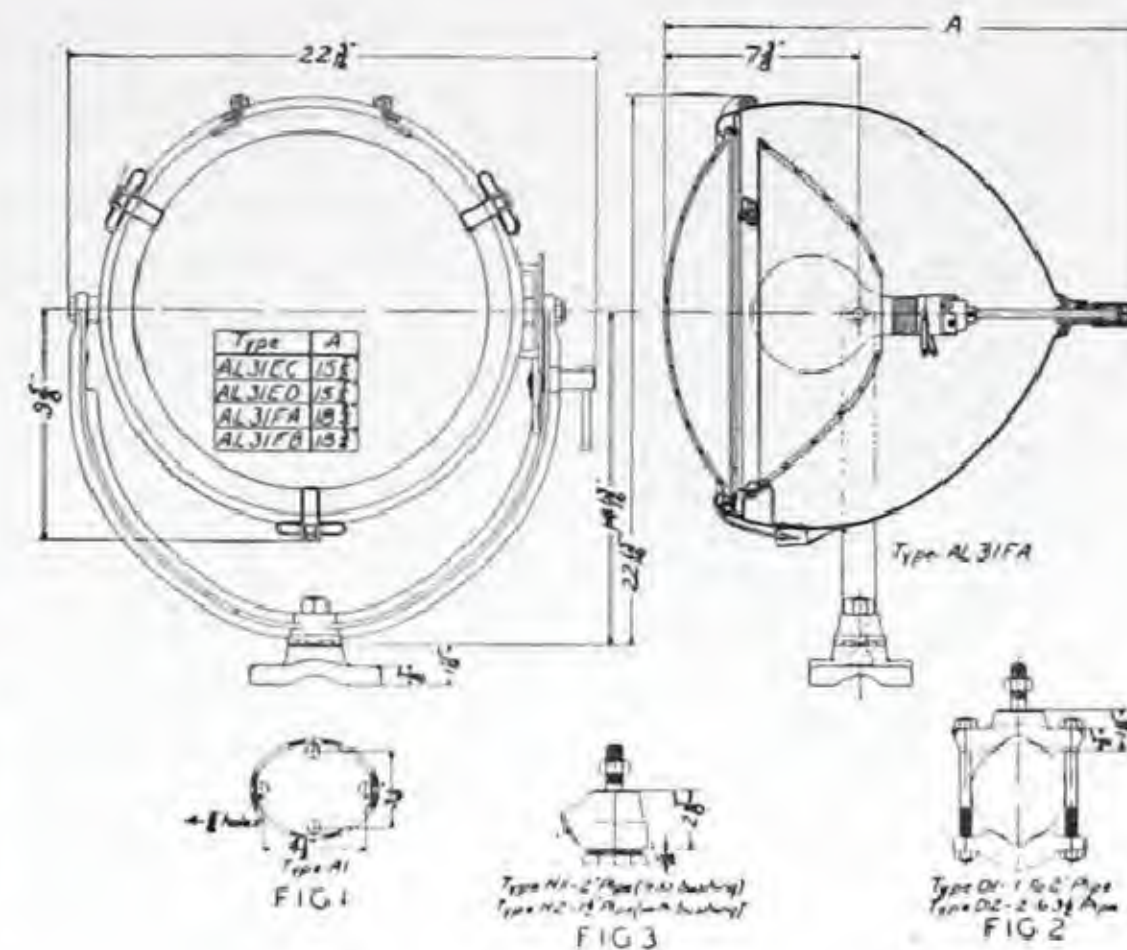
Enclosed 750/1000 Watts

ADVANTAGES

- General corrosion-resisting and weatherproof construction. Good appearance.
- Flexible mountings easily adapted to plane surfaces or pipes. Universal beam adjustment is provided. Positive positioning is provided by clamping shoe which may also serve as relocating device.
- Efficient silvered-glass reflector with special heat-resisting backing.
- Heat-resisting clear and colored door glasses in a variety of types, giving flexibility of light control.
- On Type AL-31-FA push-pull focusing mechanism allows prefocusing of projector at factory for best light utilization. Finer adjustments are easily made afield with small wrench furnished. Focusing external and may be locked into required focus.



Type AL-31-E
Copper-bronze Projector



Type AL-31-F Projector

PHOTOMETRIC DATA

Door Glass	MAZDA Lamp	Beam Lumens	Beam Spread in Degrees		F*	
			Vertical	Horizontal	Vertical	Horizontal
Type AL-31-EC						
Plain	1000W. PS-52	7558	21	27	0.37	0.48
Lightly Stippled	1000W. PS-52	7900	31	37	0.55	0.67
Heavily Stippled	1000W. PS-52	9700		67	1.32	
40° Spreadlite	1000W. PS-52	8458	21	53	0.37	1.0
A-sym-etric	1000W. PS-52	8262	29	60	0.52	1.16
Type AL-31-FA						
Plain	1000W. G-40	8740	12.5	14.3	0.22	
Lightly Stippled	1000W. G-40	8300	24.8	26.5	0.45	
Heavily Stippled	1000W. G-40	9080		54	1.02	
40° Spreadlite	1000W. G-40	8700	13.2	44.0	0.23	0.81

*Distance of floodlight to surface lighted x F = diameter of beam pattern.

DESCRIPTION

Types: AL-31-EC, AL-31-FA.

Lamps: 750- and 1000-watt PS-52 general-service MAZDA (Type AL-31-EC); 1000-watt G-40 floodlighting MAZDA (Type AL-31-FA).

Casing: One-piece die-formed sheet-copper. Door frame of sheet copper, other parts of bronze. All parts natural finish, acid-dipped, with casing and door lacquered.

Door glass: 15 3/4 inches in diameter, heat-resisting clear and colored. Maximum wattage — amber, 750; other colors, 500.

Reflectors: 14 5/8-inch effective diameter; wide-angle, 5-zone spherical-and-paraboloidal composite type (AL-31-EC); narrow-angle single-zone paraboloidal type (AL-31-FA). Both of silvered glass with special heat-resisting backing.

Mounting: Cast-bronze swivel-and-trunnion is standard. Positive clamping shoe provides accurate positioning and serves as relocating device.

Bases: Cast-bronze oval base is standard. Others available, Types D and H (Fig. 2 and 3).

Focusing mechanism: External push-pull type with factory prefocusing on Type AL-31-F. On Type AL-31-E rocker type is furnished.

Current-carrying cable: 3 feet of No. 14 A.W.G. two-conductor asbestos-and-rubber-covered cable is standard. Cable passes through watertight brass stuffing bushing and rubber gasket, and is tightened by brass packing and clamping nuts for waterproof joint.

Net weight is 35 pounds. Shipping weight is 50 pounds.

PRICE AND ORDERING DATA

Model No. (Specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL31ECA1	1000W. PS-52	Swivel and trunnion (Fig. 1)	\$85.00
2AL31ECD1	1000W. PS-52	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes (Fig. 2)	85.00
2AL31ECH1	1000W. PS-52	Pipe top, 2" pipe, bush for 1 1/2" pipe (Fig. 3)	85.00
2AL31FAA1	1000W. G-40	Swivel and trunnion (Fig. 1)	85.00
2AL31FAD1	1000W. G-40	Pipe clamp, 1", 1 1/4", 1 1/2", 2" pipes (Fig. 2)	85.00
2AL31FAH1	1000W. G-40	Pipe top, 2" pipe, bush for 1 1/2" pipe (Fig. 3)	85.00

Above prices include plain, lightly stippled, heavily stippled, 40°-Spreadlight, or A-sym-etric clear door glass — specify type when ordering. Deduct \$9.50 list for omission of door glass.

Colored door glass available in red, blue, green, and amber either plain or heavily stippled. Specify color and add \$13.00 to list.

Color plates (inserted in clips behind door glass) available in red, blue, green, and amber. Specify color and add \$13.00 to list price.

G-E Novalux Floodlighting Projectors

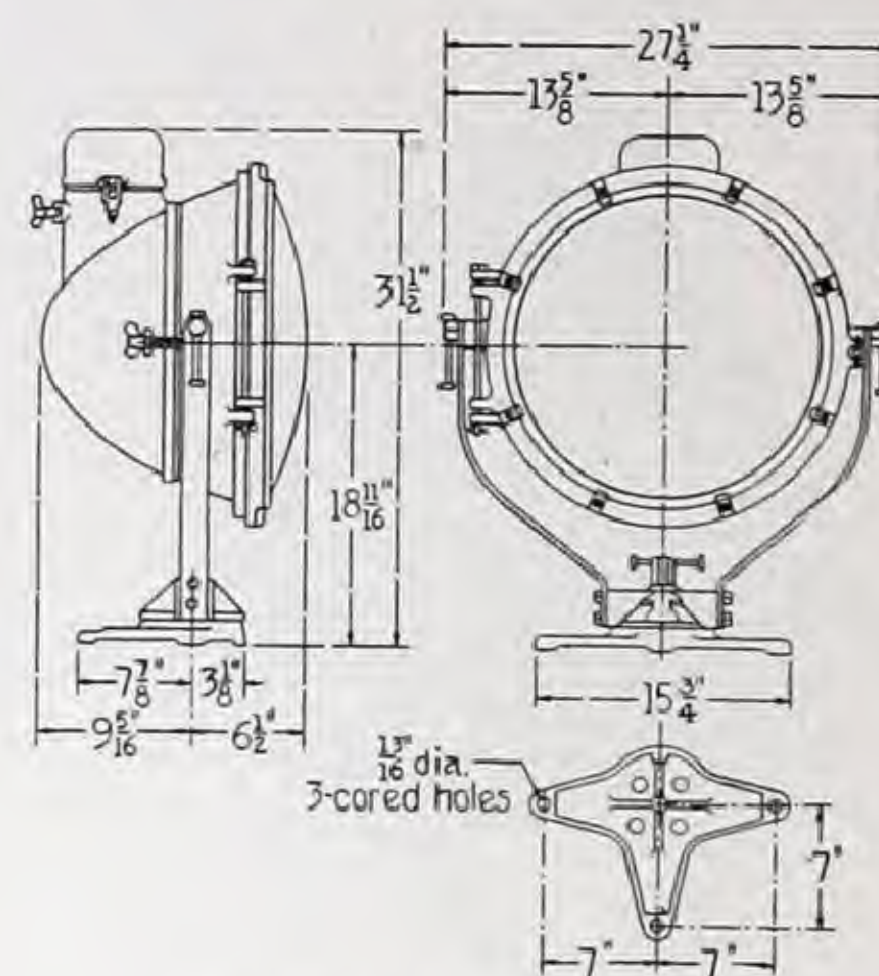
Enclosed 750/1000/1500 Watts

ADVANTAGES

- Sturdy weatherproof construction with good appearance.
- Flexible mountings available. Railroad yard crowfoot design to meet A.R.E.E. specifications.
- Two reflectors provide efficient light utilization.
- Rear door facilitates relamping and cleaning without change of position.
- Universal adjustment from swivel-and-trunnion mounting.
- Heat-resisting clear door glasses in a variety of types, giving flexibility of light control.



Type AL-24-C
Projector for
Railway Lighting, etc.



Type AL-24-C Projector

PHOTOMETRIC DATA

Door Glass	MAZDA Lamp	Beam Lumens	Beam Spread in Degrees		F*	
			Vertical	Horizontal	Vertical	Horizontal
Type AL-24-C						
Plain Lightly Stippled 50° Spreadlite	1000W. PS-52	14000	17.5	23.0	0.30	0.50
	1000W. PS-52	13800	25.5	29.5	0.45	0.53
	1000W. PS-52	15200	19.0	63.5	0.33	1.24
Type AL-24-D						
Plain Lightly Stippled 50° Spreadlite	1000W. G-40	7420	11.9	15.5	0.21	0.27
	1000W. G-40	7920	22	56.0	0.39	1.06
	1000W. G-40	-----					13.0

*Distance of floodlight to surface lighted x F = diameter of beam pattern.

DESCRIPTION

Types: AL-24-C and AL-24-D.

Lamps: 1000- and 1500-watt PS-52 general-service MAZDA lamps for AL-24-C; 1000-watt G-40 and 1500-watt G-48 floodlighting MAZDA lamps for AL-24-D.

Casing: Cast-aluminum alloy with natural-aluminum finish. Rear door is furnished for ease of relamping and cleaning.

Door glass: 19 $\frac{1}{8}$ inches in diameter, clear heat-resisting.

Reflectors: Two silvered-glass reflectors are provided. The front reflector has a single-zone paraboloidal shape with effective diameter 18 $\frac{3}{8}$ inches. The rear reflector—a two-zone spherical composite-type with effective diameter of 10 $\frac{1}{8}$ inches.

Mounting: Swivel-and-trunnion type of hot-dip galvanized steel.

Base: Cast-iron railroad-yard crowfoot-design is standard.

Focusing mechanism: External rocker type operated by screw.

Current-carrying cable: 3 feet of No. 14 A.W.G. two-conductor asbestos-and-rubber-insulated cable is standard. Cable passes through a watertight cadmium-plated brass stuffing bushing with rubber gasket and is tightened by cadmium-plated brass packing nut and clamping screw to insure a tight joint.

Net weight is 70 pounds. Shipping weight is 170 pounds.

PRICE AND ORDERING DATA

Model No. (Specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL24CBV1	1000W/1500W. PS-52	Swivel and trunnion with railroad base.....	\$175.00
2AL24DBV1	1000W/1500W. G-40/48	Swivel and trunnion with railroad base.....	175.00

Above prices include plain, lightly stippled, or 50°-Spreadlight, clear door glass — specify type when ordering. Deduct \$17.00 list for omission of door glass. For visor, add \$10.00 list.

G-E Novalux Floodlighting Projectors

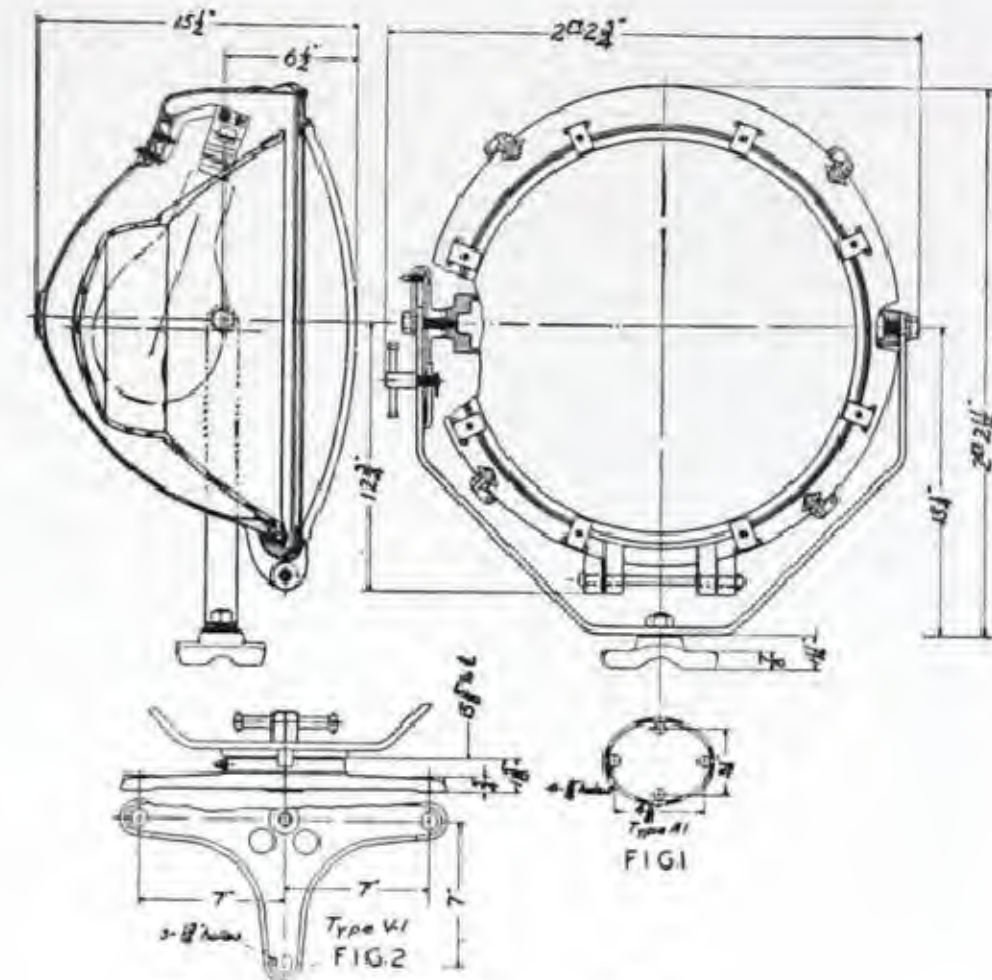
Enclosed 1000/1500 Watts



Type AL-34-C

ADVANTAGES

- (a) Pleasing appearance. Weather-proof construction.
- (b) Special railroad base enables projector to be mounted at tower edge. Many flexible mountings available.
- (c) Convenient and accurate focusing adjustment.
- (d) Highly efficient silvered-glass reflector with special heat-resisting backing.
- (e) Heat-resisting clear door glasses in a variety of types, giving flexibility of light control.



Type AL-34-C Projector

PHOTOMETRIC DATA

Door Glass	MAZDA Lamp	Beam Lumens	Beam Spread in Degrees		F*	
			Vertical	Horizontal	Vertical	Horizontal
Type AL-34-C						
Plain Lightly Stippled 50° Spreadlite	1000 W. PS-52	14900	16.8	22.5	0.30	0.40
	1000 W. PS-52	15300	25.4	30.7	0.45	0.55
	1000 W. PS-52	16650	18.8	65.0	0.33	1.27
Type AL-34-D						
Plain Lightly Stippled 50° Spreadlite	1000 W. G-40	12500	13.2	16.8	0.23	0.30
	1000 W. G-40	13300	23.0	26.5	0.41	0.47
	1000 W. G-40	14750	16.0	60.5	0.28	1.07

*Distance of floodlight to surface lighted x F = diameter of beam pattern.

DESCRIPTION

Types: AL-34-C, AL-34-D.

Lamps: 1000- and 1500-watt PS-52 general-service MAZDA lamps for AL-34-C, and 1000-watt G-40 and 1500-watt G-48 floodlighting MAZDA lamps for AL-34-D.

Casing: One-piece cast-silicon-aluminum alloy. Door also of cast aluminum alloy. Parts of aluminum are natural-finish; other parts are of brass, cadmium-plated, or steel, hot-dip galvanized.

Door glasses: 19 1/8 inches in diameter, heat-resisting, clear.

Reflector: Composite-type consisting of 3-zone spherical-and-paraboloidal contour with effective diameter of 18 3/4 inches. Silvered glass has special heat-resisting protective backing.

Mounting: Swivel-and-trunnion type of steel, hot-dip galvanized.

Bases: Standard is oval type of malleable-iron galvanized; alternative is railroad type to A.R.E.E. specifications.

Focusing Mechanism: External rocker type operated by screw.

Current-carrying cable: 3 feet of No. 14 A.W.G. two-conductor asbestos-and-rubber-insulated cable. Cable passes through watertight cadmium-plated brass stuffing bushing and rubber gasket, and is tightened by cadmium-plated brass packing-and-clamping nuts for waterproof joint.

Net weight is 72 pounds. **Shipping weight** is 170 pounds.

PRICE AND ORDERING DATA

Model No. (Specify door glass desired)	MAZDA Lamp	Mounting	List Price
2AL34CAA1	1000W. PS-52	Swivel and trunnion with oval base (Fig. 1)	\$140.00
2AL34CBV1	1500W. PS-52	Swivel and trunnion with railroad base (Fig. 2)	140.00
2AL34DAA1	1000W. G-40	Swivel and trunnion with oval base (Fig. 1)	140.00
2AL34DBV1	1500W. G-48	Swivel and trunnion with railroad base (Fig. 2)	140.00

Above prices include plain, lightly stippled, or 50°-Spreadlight clear door glass — specify type when ordering. Deduct \$17.00 list for omission of door glass. For visor, add \$10.00 list.

G-E Novalux Floodlights

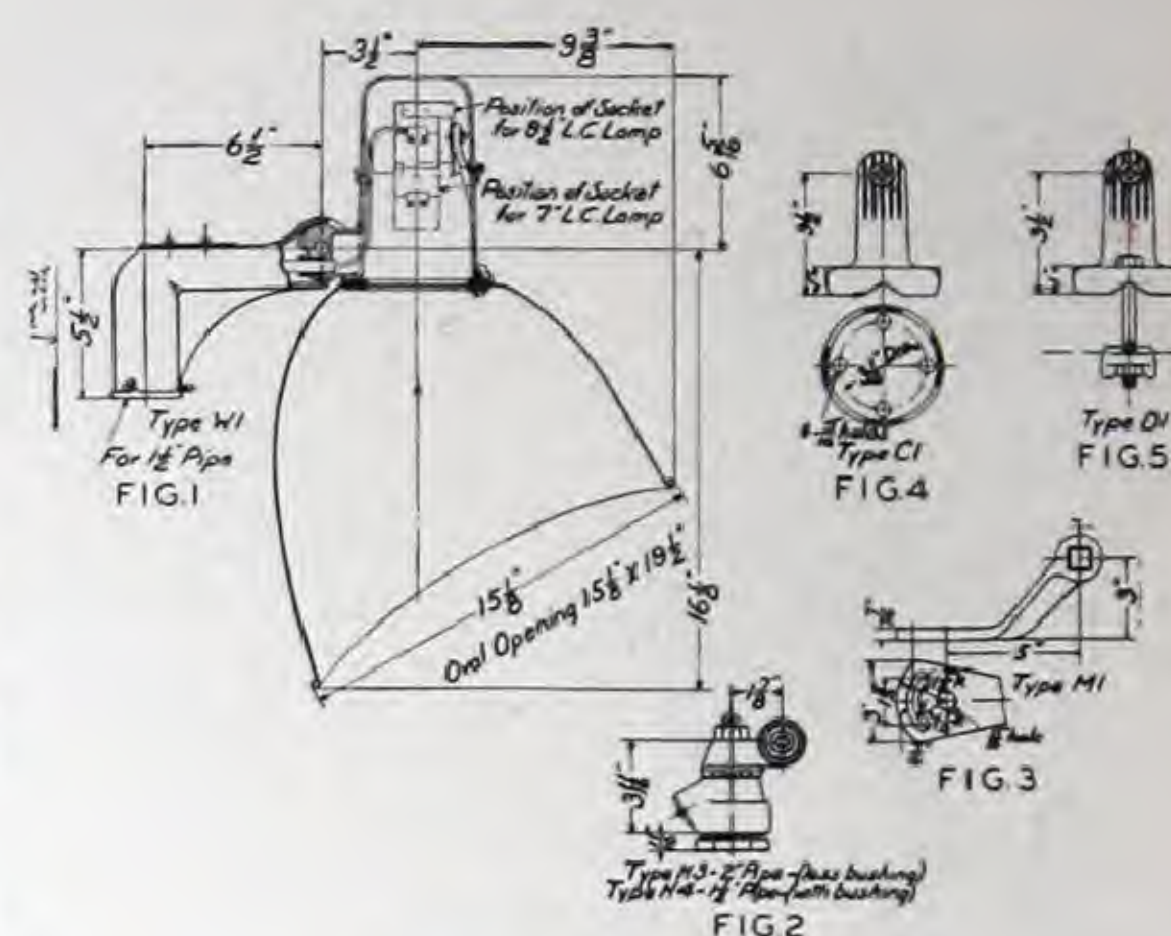
Open 300 to 1500 Watts



Type AL-45 Floodlight

ADVANTAGES

- (a) Low initial cost and maintenance with highest quality obtainable.
- (b) Sturdy construction to withstand "weathering".
- (c) Flexible mountings for every application to give easy adjustment. Removable cap facilitates wiring.
- (d) A-sym-metric light distribution ideal for general illumination of service station and sport areas.
- (e) Both semi-internal and internal wiring available.



Type AL-45 Floodlight

DESCRIPTION

Type: AL-45 open floodlight.

Lamps: 300- and 500-watt general-service MAZDA with socket support in lower (inverted) position; 750-, 1000- and 1500-watt general-service MAZDA with socket support in upper position.

Casing: Consists of 3 parts: (a) Reflector-casing, 15 1/8 inches by 19 1/2 inches of sheet steel with double coat of white glossy enamel on inside and green on outside; (b) Reflector holder of cast aluminum; (c) Cap or cover of cast aluminum for access to wiring.

Mountings: Same as Type AL-43. Following are the available mountings: Swivel-and-rocker, malleable-iron hot-dip galvanized; (Type C, Fig. 4).

Pipe-clamps for 1, 1 1/4, 1 1/2, and 2-inch pipes, malleable-iron hot-dip galvanized; (Type D, Fig. 5).

Pipe-top for 1 1/2-inch (bushed) and 2-inch pipes, malleable-iron painted black; (Type H, Fig. 2).

Cross-arm with 120°-lateral adjustment, malleable-iron hot-dip galvanized; (Type M, Fig. 3).

Slip-fitter internally wired for 1 1/2-inch pipe, cast-iron hot-dip galvanized; (Type W, Fig. 1).

Focusing mechanism: Fixed-focus type. L-shaped socket support in lower position accommodates 7-inch light-center lamps; in upper position, the 9 1/2-inch light-center lamps.

Current-carrying cable: 3 feet of No. 14 A.W.G. two-conductor asbestos-and-rubber-insulated cable passing through a watertight stuffing bushing.

Net weight is 12 pounds. Shipping weight is 18 pounds.

PRICE AND ORDERING DATA

Model No.	MAZDA Lamp	Mounting	List Price
2AL45AAC1	750/1000/1500 watts	Swivel and rocker (Fig. 4).....	\$22.00
2AL45AAD1	750/1000/1500 watts	Pipe clamp (Fig. 5).....	22.00
2AL45AAH3	750/1000/1500 watts	Pipe top (2" pipe) (Fig. 2).....	22.00
2AL45AAH4	750/1000/1500 watts	Pipe top (1 1/2" pipe) (Fig. 2).....	22.00
2AL45AAM1	750/1000/1500 watts	Cross arm (Fig. 3).....	20.00
2AL45AAW1	750/1000/1500 watts	Slip fitter (1 1/2") (Fig. 1).....	24.50
2AL45BAC1	300/500 watts	Swivel and rocker (Fig. 4).....	22.00
2AL45BAD1	300/500 watts	Pipe clamp (Fig. 5).....	22.00
2AL45BAH3	300/500 watts	Pipe top (2" pipe) (Fig. 2).....	22.00
2AL45BAH4	300/500 watts	Pipe top (1 1/2" pipe) (Fig. 2).....	22.00
2AL45BAM1	300/500 watts	Cross arm (Fig. 3).....	20.00
2AL45BAW1	300/500 watts	Slip fitter (1 1/2") (Fig. 1).....	24.50

G-E Novalux Floodlights

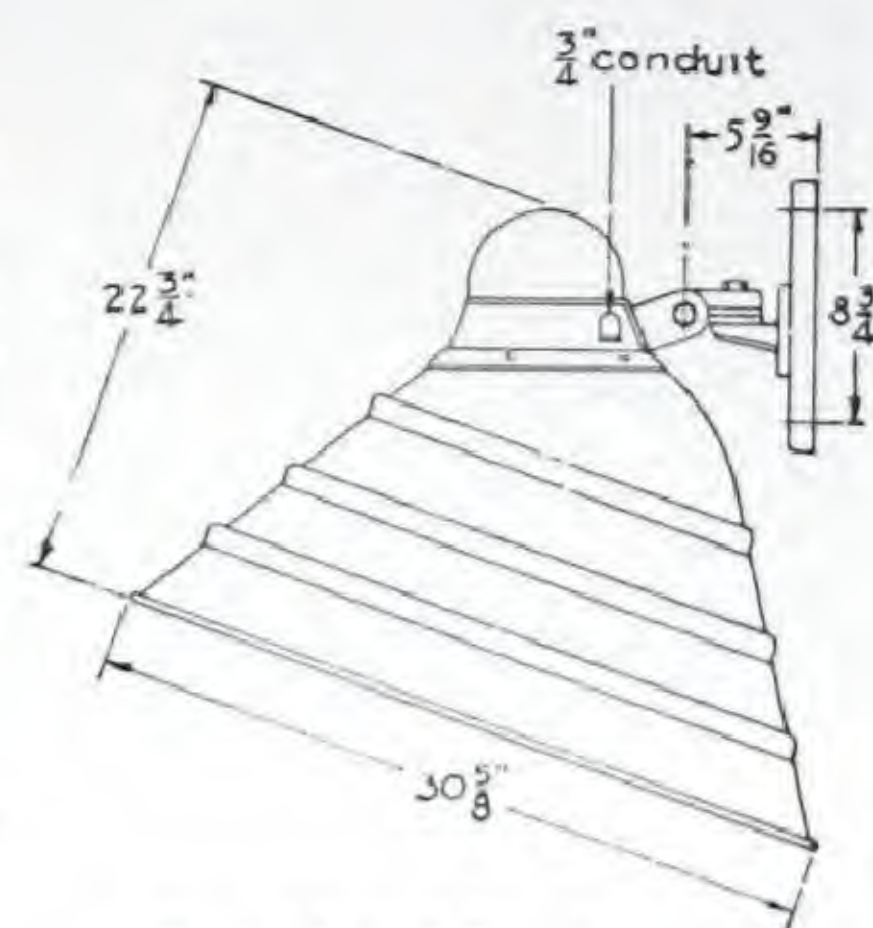
Open Type 1500 to 4000 Watts



Type AL-51-C Floodlight

ADVANTAGES

- (a) Removal of cover provides easy access for wiring.
- (b) Three-layer mat porcelain enamel reflecting surface gives very high efficiency and is impervious to severest weather conditions.
- (c) Readily cleaned by soap and water.
- (d) Low initial cost of installation per kilowatt.
- (e) Low maintenance.
- (f) Particularly adapted to lighting large areas.



Type AL-51-C Floodlight

DESCRIPTION

Type: AL-51-CA.

Lamps: 2 — 750-watt PS-52 general-service MAZDA lamps. 2 — 1000-watt PS-52 general-service MAZDA lamps. 2 — 1500-watt PS-52 general-service MAZDA lamps. 2 — 2000-watt PS-52 general-service MAZDA lamps.

Casing: Consists of three parts: (A) reflector casing. (B) reflector holder and (C) cap. Reflector casing of special enameling iron, the inside surface serving as reflector. The reflector holder is a cylindrical cast-iron casting with mounting lug cast integral with it, and with outlet for the current-carrying cable. The cap or cover is cup-shaped and fastened to the reflector holder by three screws.

Reflector: Special enameling iron of special contour 18 inches deep and 29 1/2 inches in diameter. Outside has green fire-enamel finish; inside has a three-layer mat-white fire-enamel finish.

Finish: Green porcelain enamel on reflector casing and cap; green paint on reflector holder.

Focusing mechanism: Fixed focus for 9 1/2-inch light center, PS-52 MAZDA lamp, consisting of two sockets mounted on cast-iron socket support.

Lamp socket: Mogul screw-base with nickel-plated screws, shell and center contacts.

Mounting: These types available; viz., swivel-and-rocker, slip-fitter, and cross-arm. Cross-arm mounting consists of malleable-iron casting of special design with 120° concentric slot and a vertical lug cast integral with it. Swivel-and-rocker mounting consists of a malleable-iron cast pole plate and malleable-iron cast universal arms. Slip-fitter mounting is for 2 1/2-inch pipe, provides internal wiring, is of cast iron, galvanized.

Current-carrying cables: Unit equipped with 3 feet of No. 14-A.W.G. two-conductor asbestos-and-rubber-insulated cable passing through a 3/4-inch 45° angle connector.

Net Weight is 40 pounds. **Shipping weight** is 65 pounds.

PRICE AND ORDERING DATA

Model No.	MAZDA Lamp	Mounting	List
2AL51CAC1	2-750/1000/1500/2000w. PS-52	Swivel and rocker	\$55.00
2AL51CAM1	2-750/1000/1500/2000w. PS-52	Cross arm	53.00
2AL51CAW1	2-750/1000/1500/2000w. PS-52	Slip fitter	55.00

G-E Ornamental Floodlighting Luminaires



THE UNIT

An ornamental floodlighting Novalux luminaire developed by the General Electric Company to combine the high efficiency of a floodlighting projector with the qualities of general illumination and artistic design characteristic of the ornamental street-lighting fixtures.

On account of its construction, this unit is suitable for use either as a part of a street-lighting installation or as an independent luminaire. It can be used:

1. Where it is desired to have a beam of pro-

jected light together with some distributed light — that is, floodlighting with a certain amount of general illumination.

2. Where space for mounting floodlighting projectors is not available on adjacent or opposite buildings.

3. Where the mounting of projectors on cross arms is not desirable because of the appearance during the day.

ADVANTAGES

1. Floodlighting and general illumination from one unit.

2. Obviates necessity of placing floodlights on nearby building.

3. Ornamental appearance.

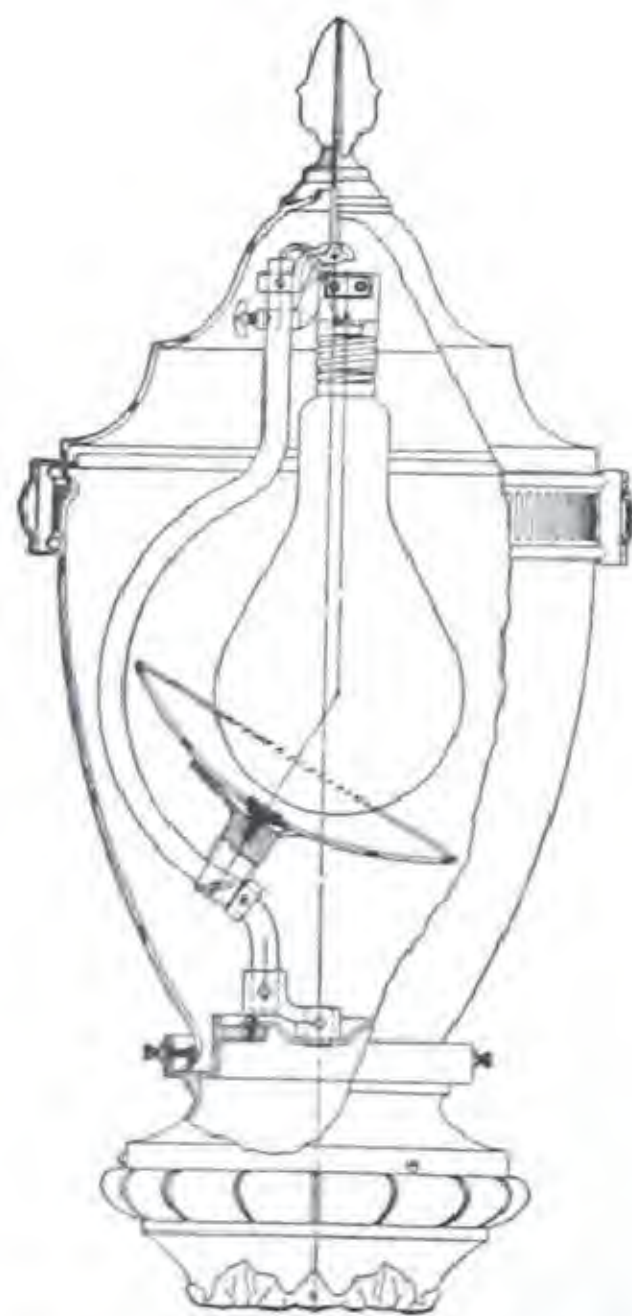
4. Conveniently installed.

5. Harmonizes with existing ornamental street-lighting equipment.

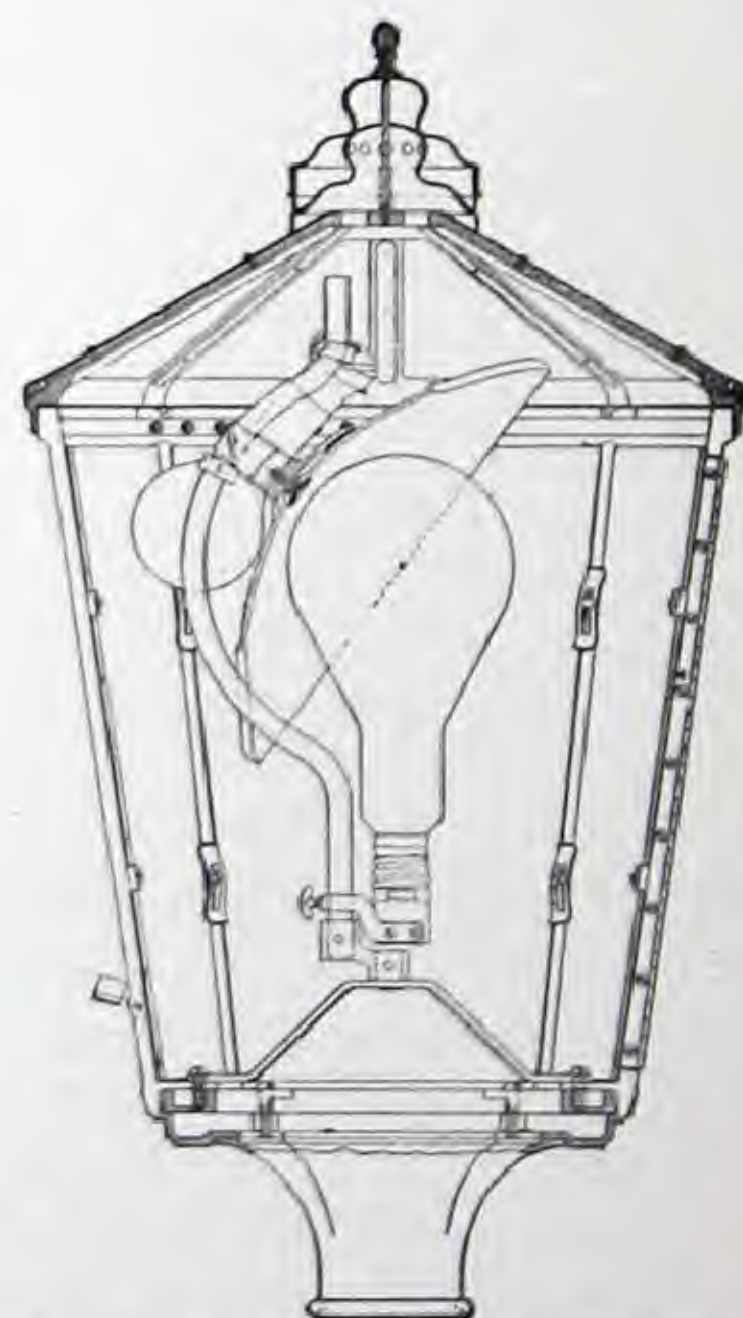
6. Redirects a large percentage of light flux.

7. Can be controlled from street-lighting circuit with an insulating transformer or directly from an ordinary multiple circuit.

Designs of the several available types of ornamental luminaires incorporating the floodlighting unit illustrated, together with complete information and prices, will be sent on request.



Cut-away drawing of floodlighting luminaire, with reflector directing light above the horizontal.



Lantern-type floodlighting luminaire, with reflector directing light below the horizontal.

Union Metal Floodlighting Poles

The customer interested in poles of architectural appeal for mounting floodlights and signs will be interested in the attractive Union Metal designs shown. Strength, durability, and uniform taper are essential properties. They can be obtained in either fluted or plain style. Two-section poles use either embedded or anchor base construction for the lower section with the top extensions of two inch pipe. The lower section is of sufficient length that the installed pole has its smooth tapered lines extended high above eye level. Price economies in tall poles are thus effected without marring the finished installation appearance.

Pole Strengths

(a) For the mounting of one floodlight, the manufacturer recommends Designs Nos. 5727, 5722X2, 5721X1, 5722, 5948, 5950, and similar Fluted Poles; however, for filling station illumination and jobs of this character where the smaller and lighter type floodlights are used, these poles may be used to support two floodlights.

(b) For the mounting of two floodlights, Designs Nos. 5721, 5722X1, 5723X1, 5726, 5728X1, 5947, 5949, and similar Fluted Poles are recommended.

(c) For the mounting of three or four floodlights, Designs Nos. 5723, 5724, 5725, 5728, 5729, 5730, and similar Fluted Poles are recommended.

(d) For the mounting of four to six floodlights, Designs Nos. 5724, 5725, 5729, 5730, and similar Fluted Poles are recommended.

Attachment of Floodlights

The two-section poles are furnished with a standard pipe thread on the upper end of the pipe used in making this type pole. The one-piece poles, Designs Nos. 5724, 5725, 5729, 5730, and similar Fluted Poles are priced and furnished with the top end of the pole open. If customer desires to close the top of the pole or attach a floodlight to the top of it, such as illustration M, the manufacturer will supply for an additional charge either a pressed steel pole cap or a steel casting that is welded to the top of the pole and drilled and tapped for insertion of a pipe or bolt. Methods of attaching floodlights are illustrated on the drawing. These attachments are priced separately from the poles.

Wiring

In most cases these poles use concealed wiring. All prices include the cost of drilling and tapping two holes for attaching $\frac{3}{4}$ -inch conduits as shown.

Foundations

Embedded type poles are usually set in concrete of a depth of six inches to one foot more than the embedded portion shown on drawing. Anchor base poles should have a foundation two inches wider than the dimensions of the steel base. The depth of this foundation should

be the same as that used for the embedded type of the same height out of the ground. Foundation templet drawings are sent out in advance of pole shipment on all orders for anchor base style.

Painting

All poles are painted with a quality primer. Red lead can be furnished for an additional charge; see price sheet.

Anchor Rods

Anchor base type poles are priced and shipped complete with anchor rods and the leaves for covering the anchor rod nuts.

Two-Section Poles

The design of the two-section pole reduces handling charges and freight costs. These poles are always shipped in two sections, neither of which is longer than twenty-two feet. An example of the economy effected in freight is as follows: A pole the same length and size as Design No. 5726 would carry a freight rate, when shipped from Canton, Ohio, to Chicago, Illinois, of \$9.60 each. The freight rate on this pole shipped in two sections is \$0.52 each. This is a decided advantage when selling against present day competitive prices.

The field joint used for assembly is illustrated on the drawing, being a practical field joint that requires no tools or caulking to assemble. This joint has a finished appearance that does not detract from the completed pole. Poles shipped in two sections facilitate handling operations where transported by trucks or other conveyance.

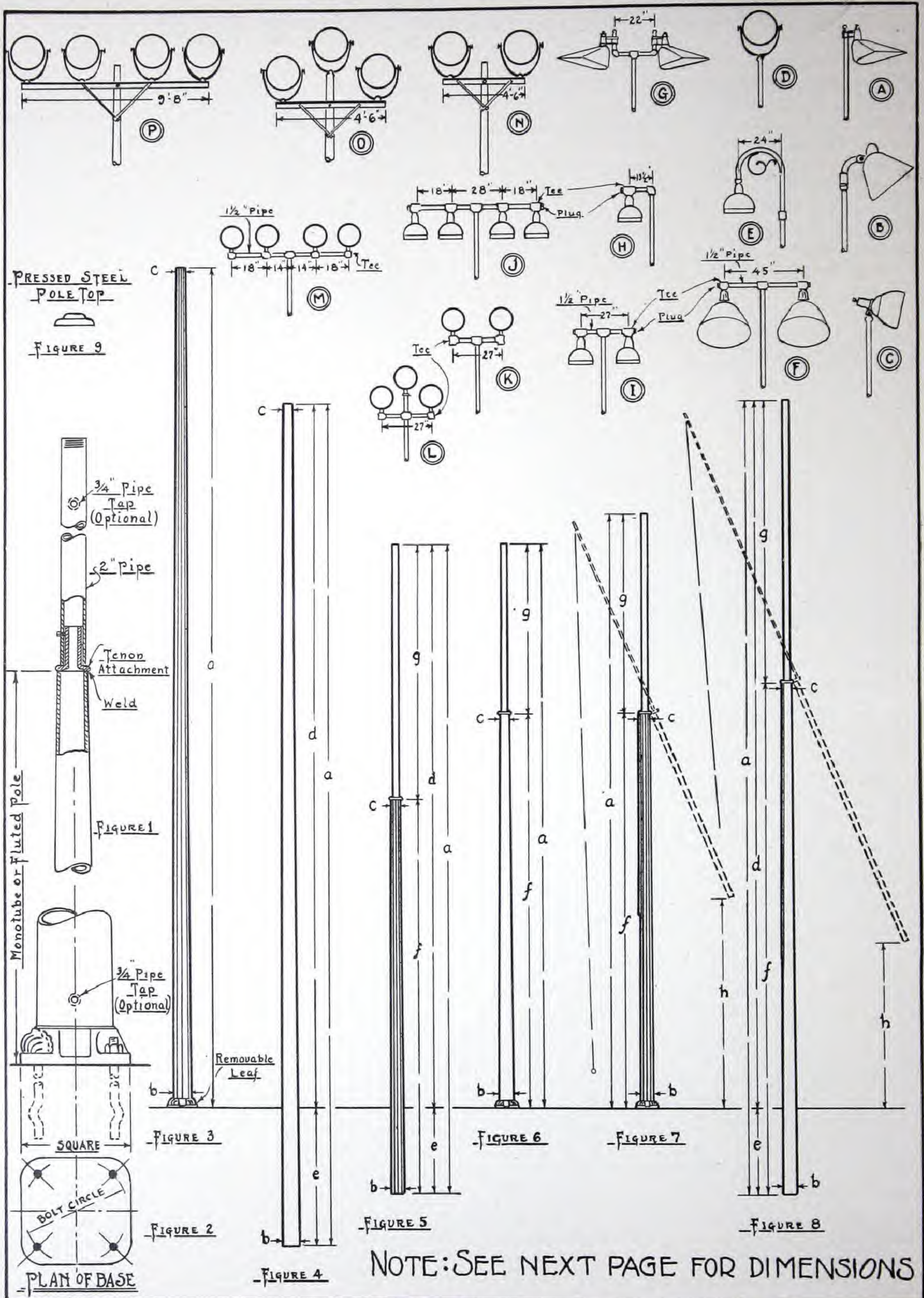
Freight Rates

It will be noted that all prices quoted are F.O.B. factory. When pricing equipment with freight included, you should refer to the nearest railroad freight office for freight rates, giving the freight agent the following information in regard to classification on the poles:

Designs Nos. 5721, 5721X1, 5722, 5722X1, 5722X2, 5723, 5723X1, 5726, 5727, 5728, 5728X1, and similar Fluted Poles, namely two-section poles, when shipped in less carload lots take a rating of forty percent of First Class freight rates to destinations within Official Territory and Fourth Class to destinations within southern and Western Territory. These articles are described on bill-of-lading by the wording contained on Consolidated Freight Classification No. 7 issued August 5, 1932, Page 451, Items 10 and 11.

Designs Nos. 5724, 5725, 5729, 5730, and similar Fluted Poles will carry a different freight rate from the two-section type. These are subject to Rule 29 which provides for a minimum of one thousand pounds at First Class rates for less carload shipments. The reason these poles take this rate is that they are under twelve inches in diameter and over twenty-two feet in length.

UNION METAL FLOODLIGHTING POLES



Union Metal Floodlighting Poles

DIMENSIONS AND ENGINEERING INFORMATION

(Note: See illustration on preceding page.)

Design No.		Fig. No.	a	b	c	d	e		g	h	Remarks
Plain Round	Fluted										
5721	5821	6	20'	5"	3.04"	-----	-----	14'	6'	-----	For Small Size Units only
5721X1	5821X1	6	25'	5"	3.04"	-----	-----	14'	11'	-----	
5722	5822	6	20'	5.5"	2.96"	-----	-----	18'	2'	-----	
5722X1	5822X1	6	25'	5.5"	2.96"	-----	-----	18'	7'	-----	For Small Size Units only
5722X2	5822X2	6	30'	5.5"	2.96"	-----	-----	18'	12'	-----	
5723	5823	6	25'	6"	2.99"	-----	-----	21'-6"	3'-6"	-----	
5723X1	5823X1	6	30'	6"	2.99"	-----	-----	21'-6"	8'-6"	-----	
5724	5824	3	30'	7.5"	3.3"	-----	-----	-----	-----	-----	
5725	5825	3	35'	8"	3.1"	-----	-----	-----	-----	-----	
5726	5826	5	23'	5"	3.04"	20'	3'	14'	9'	-----	
5727	5827	5	28'	5.5"	2.96"	25'	3'	18'	10'	-----	
5728	5828	5	24'	6"	2.99"	20'	4'	21'-6"	2'-6"	-----	
5728X1	5828X1	5	29'	6"	2.99"	25'	4'	21'-6"	7'-6"	-----	
5729	5829	4	30'	7.5"	3.3"	25'	5'	-----	-----	-----	For fluted poles
5730	5830	4	35'	8"	3.1"	30'	5'	-----	-----	-----	
5886	5889*	3	40'	† 9"	† 3.4"	-----	-----	-----	-----	-----	b
5887	5890*	3	45'	† 10"	† 3.95"	-----	-----	-----	-----	-----	c
5888	5891*	3	50'	† 11"	† 4.25"	-----	-----	-----	-----	-----	11"
5892	5896*	4	40'	† 9.3"	† 3.74"	35'	5'	-----	-----	-----	11"
5893	5897*	4	46'	† 9.8"	† 3.65"	40'	6'	-----	-----	-----	12"
5894	5898*	4	51'	† 10.8"	† 3.95"	45'	6'	-----	-----	-----	10.8"
5895	5899*	4	57'	† 11.8"	† 4.11"	50'	7'	-----	-----	-----	10.8"
				Hinged	Poles						11.8"
5947	5951	7	23'	5"	3.04"	-----	-----	14'	9'	6'	11.8"
5948	5952	7	30'	5.5"	2.96"	-----	-----	18'	12'	7'	12.8"
5949	5953	8	23'	5"	3.04"	20'	3'	14'	9'	3'	
5950	5954	8	28'	5.5"	2.96"	25'	3'	18'	10'	6'	

*Denotes 16 flutes, all other fluted poles have 8 flutes.

†These dimensions for plain round type poles only, for "b" and "c" dimensions, these poles fluted see "Remarks".

Note: Prices on application.

Accessories

When ordering attachments, designate what manufacture and type of floodlighting unit is to be used. Accessories are not included in pole prices.

Illustration	Description	Shipping Weight, Lbs.
A	For two section poles, no additional equipment is needed if lights can be attached to threaded section of the two inch pipe; if not, a reducer and nipple can be furnished.....	4
B	Same as A.....	6
C	Same as A except cap required.....	6
D	Same as C.....	2
E	For attachment to two section poles, goose neck pipe and ornamental scroll with coupling, reducer and nipple at.....	30
F	For Designs 5724, 5725, 5729 and 5730, goose neck pipe scroll and steel cap casting.....	36
G	Pipe assembly including equipment to mount on top of pipe section.....	16
H	Same as F.....	14
I	Same as F.....	8
J	Same as F.....	12
K	Same as F.....	22
L	Same as F.....	13
M	Same as F.....	16
N	Same as F.....	22
O	For this assembly we furnish angle steel cross arm, cross arm braces, steel pole gain, through bolt and pole band for brace.....	27
P	Same as N but with additional steel casting welded to top of pole for attachment of center floodlight.....	40
Fig. 9	Same as N.....	50
----	Pressed steel pole top.....	3
----	Pipe Attachment: In order to attach floodlights to top of poles 5724, 5725, 5729 and 5730, it is necessary to purchase a steel adapter welded to top of Monotube pole. This will be drilled and tapped to customer's specifications.....	6
----	Painting: Red lead paint instead of regular asphalt paint, at slight additional cost.....	---

GENERAL ELECTRIC COMPANY

GENERAL OFFICE, SCHENECTADY, N. Y.

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Executive Offices: 570 Lexington Avenue, New York City SCHENECTADY, N. Y.

Cable Address: "Ingenetric New York"

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